

# Introduction

The applicants, most parties to this docket, and over 270 individuals provided written comments on the ERGS draft EIS. Many members of the public also provided oral comments regarding the draft EIS to PSC and DNR staff during the public meetings conducted in the city of Oak Creek and the town of Caledonia during late May 2003. Comments from the applicants, parties, and the public generally provided substantive information, constructive criticism, or questions regarding the content of the draft EIS. Some comments were related to PSC and DNR review procedures or expressed personal opinions about the proposed project. All written comments postmarked by June 15, 2003 and the information obtained during public information meetings were considered in the development of this final EIS.

All members of the public who submitted comments that specifically addressed issues or questions about the draft EIS have been listed in Table 1 below and the topics or questions that they addressed are also listed. These comments are not reproduced in Volume 3 due to production problems (scanning difficulties, being handwritten, etc), however, they are available for review at the PSC.<sup>1</sup> Public comments that expressed a personal opinion about the project and whether it should be approved or not, without addressing the draft EIS, were read and acknowledged, but the names of these commenters are not included in Table 1.

All comments from parties or organizations that were submitted to the PSC have been reproduced in this volume of the final EIS.

During the review of the comments on the draft EIS, PSC and DNR staff pulled questions or statements from the written and oral comments and they have reproduced below. PSC or DNR staff has responded to each of the questions or statements. In many instances, the comments received prompted PSC and DNR staff to perform additional analyses for particular issues. In these cases, the results of that additional analysis are usually in the text of Volume 1 of the final EIS and a reference to that analysis is provided in Volume 3. In other circumstances, further investigation by staff into the arguments being made by a particular commenter led staff to the conclusion that its original assumptions and analyses were accurate. In these situations, the reasoning behind the original assumption or analyses are more fully described in Volume 3.

Many of the comments were extremely useful in pointing out omissions, typos, or errors in staff's analyses that have been corrected in the final EIS. Because of the press of time and statutory deadlines, it was not possible to respond in writing to each question or comment received. It is our hope that the questions and statements covered in the following section are representative of the major concerns and issues that the public and the intervenors believed needed to be addressed in the final EIS.

The questions and statements along with staff responses have been grouped according to the issues covered by the chapters in Volume 1. For example, comments and staff responses related to air emissions are found under the Chapter 7 heading in this volume.

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<sup>1</sup> Contact Jeff Kitsemel, Case Coordinator, at (608) 266-9658 or at [jeff.kitsemel@psc.state.wi.us](mailto:jeff.kitsemel@psc.state.wi.us).

The staff of the PSC and DNR have given careful consideration to all of the comments received and have attempted to reflect as many of the comments as possible in the text of the final EIS as well as this volume. We appreciate all of the time, effort, and careful thought on the part of all of the commenters who read the draft EIS and provided the input that was so valuable in producing the final EIS.

**Table 1 Summary of Public Commenters and the Topics Addressed**

Commenter	Topics Addressed
Daniel Bach	There is no air quality/health impact study. Believes that the comparison with highway numbers minimizes the ERGS impact, that the train/traffic data is suspect, that there should be a more thorough discussion of property values and that the BACT is still unresolved.
Jim Baker	The pollutant dispersion areas will change due to a lower stack height. The EIS should include a complete, comprehensive risk assessment.
John Berger	The draft EIS doesn't fully explain that gas prices could go down. The emission credits used by WEPCO won't be available for commercial/industrial businesses. The final EIS should disclose full cost of needed transmission facilities. The economic analysis should include costs associated with health care and lives lost.
Carla Beyerl	The loss of woodlands, wetlands and shoreline needs more emphasis. The permanent jobs created will be very specialized and may be filled with staff displaced by the closing of the Port Washington coal units. How many entry level jobs will be created? The issue of transmission lines should be more fully discussed. The EIS should show the area that will be served by the plant.
Dorothy Bocciardi	The cost analysis should include all externalities (mercury, road infrastructure, disposal of by-products, etc).
Rick Burt	The air modeling should include fumigation effects, periodic transport of pollutants from the Chicago area, secondary emissions from diesel trains, secondary emissions from coal dust from open rail cars, and the new height of the stacks for the North Site. The need for additional rail crossing modifications at Four Mile Road should be discussed.
Richard Clark	Health impacts and the cost of health care should be included.
Frank Egerton	The Welland Canal opened in 1892. (Page 183)
Barbara Eisenberg	The EIS should discuss the Navitas wind proposals for Shawano and the Upper-Midwest. Conservation and DSM should be a part of an integrated alternative. The EIS should look at what other states are doing and should discuss energy demand throughout the year (when is it the highest, what sector uses the most).
Dorothy Feeney	Health impacts associated with the proposed coal-fired plants should be evaluated. Expand the discussion of renewable technologies.
Carla Freeman	Discuss why coal (and not natural gas) is the fuel of choice. The

	reburning of flyash should be more thoroughly discussed. The demand for energy doesn't appear to require building ERGS.
John Graham	Human health costs should be included in economic evaluation.
Alec Granger	Costs associated with externalities should be included. Why wasn't the retirement of Oak Creek Units 5 & 6 announced earlier?
William Guenther	The effects of the project on tourism and sport fishing should be discussed.
Mary Ann Hernke	Train and traffic congestion increases local air pollution. Windows crack due to the rumble and vibration of trains. Discuss these impacts.
Jane Hutterly	Health impacts associated with the proposed coal-fired plants should be included, as well as impacts on the water table and aquatic life.
Gretchen Kalmer	Why does the EIS contain only air modeling done by WEPCO?
Robert Keller	The EIS should discuss the difference between the permitted emission rates and pollution caps (EPA agreement).
S. Kniesly	More information on mercury and coal dust and diesel emissions from trains should be included. The EIS should also include a discussion of WEPCO's compliance record.
Bill Lavalette	The information in Table 4-1 is outdated. Include a better evaluation of the wind potential in Wisconsin. Avian mortality caused by turbines should be discussed in more depth. The Production Tax Credit may not apply.
Sally and Mike Madden	There needs to be more research on cost, availability of alternative power sources, health issues, economics of air pollution and traffic.
Frances Martin	The effects of air pollutants on in-land waters should be discussed.
Stephen Mawn	The EIS lacks a meaningful discussion of health impacts.
Vicky Mayer	Describe the responsibility of the Joint Commission on the Great Lakes. Is their approval required?
Frank Michna	Train data is inaccurate.
Michael Miller	Wind power in the EGEAS runs should not be limited to 250 MW.
Robert Nemanich	Discuss the future probability of non-compliance with air emission regulations. The EIS should discuss wrongful deaths since 1995 due to non-compliance.
Nancy Pierce	The impacts to navigable waters, health impacts and the effects of transmission line upgrades should be discussed more thoroughly.
Bruce Renquist	There are hidden costs that should be disclosed (transmission lines, rail impacts, maintenance).
Linda Robers	Discuss potential for accidents and spills during shipment of sulfuric acid.
Leroy Roberts	What will be the effect on new and expanding businesses? What effect will the proposed plants have on emission credit trading?
Tedine Ross	Fuel diversity should be more thoroughly examined. There should be more discussion of the source and transportation of natural gas.
Thomas Rutkowski	The discussion of hazardous air pollutants should be expanded.
Jo Sandin	More information is needed about the impacts on fire, police and medical staff in the event of a catastrophic accident.
Wayne Stroesser	Does "least cost" include all externalities? It should include costs associated with lives lost, acid rain, smog, health impacts, mercury reduction costs, toxic emissions, global warming, maintaining the

	railroad, and coal mining environmental costs.
Brad Stong	The EIS needs to analyze more alternative sites.
Jeff Systma	Health impacts associated with the proposed coal-fired plants and the cost of transmission lines should be evaluated and discussed. Impacts of once-through-cooling, dust from coal handling, and site alternatives should be discussed more thoroughly.
David Ultrag?	A “big picture” discussion of our dependence on foreign fuel sources is missing.
Tom Ward	EGEAS should be allowed to choose more than one natural gas-fired plant.
Jay Warner	Tables 7-29 and 7-33 aren’t consistent with respect to mercury data. Why are the emissions of the super-critical auxiliary boilers lower than those for the super-critical unit? Expand the discussion of the impacts of HAPS, particularly Hg and HF.
Andy Weber	EIS needs to explain the issue of coal and ash leaching. The differences between WEPCO’s ads about coal delivery and the information in the draft EIS needs to be explained. The potential impacts of barging ash off-site should be evaluated in the final EIS. The effects of a wallboard plant are unclear. The impacts of hazardous air emissions (including those from reburning of ash) need to be explained more completely.
Dona Wininsky (American Lung Assoc.)	The draft EIS fails to address health impacts.
Sharon Worthy	The final EIS should consider the effect of lake breezes in keeping pollutants concentrated near the shore.
Unsigned	A comparison of the air emissions from coal and natural gas should be included.
Unsigned	How long will the plant emissions be trapped in the Lake Michigan basin by sea/shore breezes? Would the increased coal train traffic prevent the establishment of a Chicago-Racine-Milwaukee commuter rail?

Following is the question and response section of Volume 3. We attempted to list the commenter(s) that raised the question or made a statement. Due to the large volume of comments, we may have inadvertently attributed the question or statement to the wrong commenter or not to all of the commenters that had similar concerns.

## Chapter 2 PTF Costs and Financing Mechanism

***The benefits of the lease arrangement with respect to reducing adverse impacts of wholesale electric competition and enabling smaller utilities to purchase baseload capacity should be recognized. – (WPPI)***

The final EIS already indicates that price-regulated leases do mitigate horizontal market power concerns. The final does not cover small utilities purchasing long-term capacity because FERC and US DOJ guidelines indicate that long-term capacity markets beyond three years are competitive markets that have been deregulated.

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***The risk of cost overruns is actually lower in the current environment of low interest rates and low inflation. - (WPPI)***

An overrun is an overrun and risk is unaffected by low interest rates and inflation. The magnitude of the risk is clearly affected and the final EIS speaks to the magnitude.

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***The EIS overstates the impact of adding baseload capacity too soon. – (WPPI)***

This issue is best managed by adopting a proper materiality threshold which the final EIS does.

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***Externality costs, such as the cost of future pollution controls, health impact costs, morbidity and mortality, etc. should be taken into consideration when assigning costs to the project. – (Town of Caledonia, Sierra Club, Clean Wisconsin, SC Johnson)***

The final EIS speaks to the effect of externalities. Additional EGEAS modeling incorporated monetization of SO<sub>2</sub>, NO<sub>x</sub> and Hg. Morbidity and mortality issues are addressed to some extent by EPA standards. Potential health impacts and morbidity and mortality are discussed in greater detail in a response to a related question in Chapter 7 of this volume.

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***A 13.7% rate of return (ROR) assumption is too high, based on historical and other current projects. The cost analysis should be redone using a lower ROR. – (SC Johnson)***

The final EIS indicates that lower RORs would strongly support using ratebase financing for this project rather than a lease.

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### **Chapter 3 Need for Baseload Capacity in Southeastern Wisconsin**

***The historical outage data indicates that natural gas combined-cycle plants are as reliable as coal-fired generation. Inputs to the EGEAS model should be adjusted to reflect a more accurate outage rate of natural gas technology. - (SC Johnson)***

***The 2% outage rate, suggested by the applicants, for the ERGS facility is too low based on historical data. Historical outage rates are closer to 6-7% per year. - (SC Johnson)***

A 5 percent forced outage rate was used in EGEAS for all combined-cycle units and a 2 percent outage rate was used for the SCPC units. The 2 percent value is based on a best case average for coal plants. However, there is little data for combined-cycle units in Wisconsin for comparison. Staff will continue to research this issue and attempt to provide more information at the time of the hearings.

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***The peak growth demand assumption is too high. – (SC Johnson)***

The final EIS includes a lower demand EIA forecast for energy and demand as well as a sensitivity in which load growth is further reduced by available DSM.

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***Discuss the yearly energy demand in WEPCO's service territory -- when is it highest, and which sector uses the most energy. – (Barbara Eisenberg)***

Energy usage is highest in the month of August (per WEPCO's 2001 Annual Report to PSCW). The industrial sector uses the most energy.

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***Include the perspective that ERGS provides a hedge against early retirement of baseload nuclear generation units. - (WPPI)***

WPPI is correct here, but this is best handled qualitatively as there is no probability known about nuclear retirements. Such a probability would be needed to do a proper hedging cost/expected benefit analysis.

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***The 1000 MW of cost-effective energy efficiency savings identified in staff's analysis (Chapter 4) should be incorporated in the demand forecast in Chapter 3. – (SC Johnson)***

The lower EIA forecast is being adjusted to include even more energy efficiency than modeled in the draft EIS.

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***Provide a need analysis that assumes that the current economic slowdown would continue into the planning period. – (Clean Wisconsin)***

History shows that recession slowdown would, at best, change the timing of new plants by a few years. If the slowdown is permanent, timing can be greatly affected. Growth forecasts of the US economy do not suggest a permanent slowdown, so it was not modeled.

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## **Chapter 4 Alternatives to the Proposed Project**

***The EGEAS model does not incorporate many subjective factors, such as the fact that wind generation is not a suitable substitute for baseload coal generation. – (WPPI)***

One subjective factor that is included is the capacity of the plant allocated to meet the reserve margin. Only 20 percent of the total wind capacity is considered. Other alternatives utilize 100 percent of the capacity towards meeting the required reserve margin.

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***The risks of high natural gas prices are not adequately captured in the draft EIS. Suggestion for an EGEAS run in which the high-natural gas sensitivity is 50% over base natural gas prices. Another run should be done that includes CO<sub>2</sub> monetization and a high-natural gas sensitivity to reflect the high demand and price for natural gas if CO<sub>2</sub> is monetized. – (WPPI)***

EGEAS modeling has adapted the applicant's best forecasts for gas and coal fuel prices. These appeared reasonable. 2003 Base Case gas prices are already \$6.50 in the model. By 2007 the base price is \$4.50 which is what most consensus forecasts predict. Commenters are free during briefing to suggest an ever higher gas price interpretation. Using significantly higher gas prices would stop gas plant construction. This aspect is obvious, therefore modeling is not needed.

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***Add a discussion of an integrated resource alternative – (Clean Wisconsin, Sierra Club, R. Owen)***

PSC staff views the EGEAS run that includes the DSM-EIA load growth sensitivity as an integrated alternative. Under the Optimal scenario (through the year 2014), this alternative includes 600 MW of simple-cycle CTs, both 545 MW Port Washington combined-cycle units, the two SCPC units (in 2012 and 2013), and 280 MW of wind capacity.

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***Energy efficiency analyses are inadequate and outdated. Acknowledge that STEP doesn't address energy efficiency potential in the industrial sector. Include more discussion about the potential for additional load management opportunities. – (Sierra Club, Clean Wisconsin, CUB, R. Owen)***

Both the applicant and PSC staff conducted an energy efficiency analysis, but these analyses have several shortcomings. The most significant of the shortcomings of Commission staff's analysis is that the data used is outdated and incomplete. However, it is currently the best information available. Commission staff does not have sufficient resources to complete a comprehensive energy efficiency potential study. The STEP Study, upon which Commission staff's analysis is based, was a multi-year endeavor using the resources of a consultant and numerous utility staff. Estimating energy efficiency potential is difficult. This difficulty is due not only to the lack of data regarding the savings of energy efficiency measures, but also the uncertainty regarding the actions customers will take in response to energy efficiency information and incentives. Commission staff's analysis compensates for the lack of information by varying several assumptions in its analysis, resulting in several energy efficiency scenarios. The scenarios provide a broad range of energy efficiency potential. The most aggressive of these scenarios, which assumes a market potential of 85 percent, identifies more than 600 MW of additional energy efficiency potential in 2011. This is far more than the additional 47 to 146 MW in 2011 identified by the applicant's consultants using a data-intensive measure-specific analysis.

Neither the applicant's nor Commission staff's energy efficiency analysis included an estimate of the energy efficiency potential of other utilities or entities that have rights to acquire a portion of ERGS-- Madison Gas and Electric Company; Wisconsin Public Power, Inc.; and Dairyland Power Cooperative. The need assessment of the applicant includes a sensitivity that indicates that

it has need for the entire 1830 MW if no other entities acquire a portion of ERGS. It is therefore appropriate that the energy efficiency analysis include only the potential of the applicant. If another entity requests approval from the Commission at a later date to lease a portion of ERGS, Commission staff would conduct a needs and energy efficiency potential analysis for that entity, at that time.

Changes were made to the energy efficiency discussion in Chapter 4 of the final EIS to indicate that the avoided generation costs used in the STEP Study are outdated and likely underestimate the energy efficiency potential. Changes were also made to identify the failure of STEP to include avoided transmission and distribution costs as a weakness of staff's analysis.

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***The Base Case should reflect at least a reasonable level of energy efficiency. – (SC Johnson)***

The final EIS will include a new sensitivity using a lower EIA demand and energy forecast (as in the draft EIS), but it will also be further lowered to incorporate more energy efficiency.

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***Improve the discussion of Wisconsin wind potential, including off-shore wind. – (Clean Wisconsin, R. Owen)***

A section of text related to off-shore wind has been added to Chapter 4.

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***The stated costs for biomass are too high and the potential described is too low. – (R. Owen)***

PSC staff reviewed and utilized EIA data when preparing its assumptions for the EGEAS modeling.

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***BASE Case construction costs for natural gas plants are too high – (SC Johnson)***

For the gas plants, the final EIS uses actual bid prices from Calpine, but those prices cannot be revealed due to confidentiality.

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***CO<sub>2</sub> monetization costs should be added to the Base Case. Costs of other pollutants should also be monetized - only SO<sub>2</sub> allowances are monetized. – (SC Johnson)***

Monetization of Hg, SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> have been examined in the final EIS.

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***Per the consent decree, the potential retirement of Oak Creek Units 5 and 6 should be included in an EGEAS model run, as should the possibility of just installing controls. Consider dispatch effects. – (City of Oak Creek)***



EGEAS modeling performed by PSC staff included retirement of OCPP units 5 and 6 in 2012 as a sensitivity run. Staff also performed a sensitivity run that retired all units (including units 5 and 6) at 60 years of life. The cost of pollution controls for these units from 2012 forward were not included however, since they are not known at this time.

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***Describe transmission line interconnection and transmission service costs for all of the alternative scenarios (i.e. the Optimal plan, Calpine, ERGS, and ERGS w/o IGCC) - (Clean Wisconsin)***

Due to the complexity of transmission alternatives and the uncertainty related to future load centers, this analyses cannot be performed within the time allowed or to any degree of certainty.

## **Chapter 5 Fuel Diversity Perspectives**

***Provide more information about the ability to transport natural gas into Southeastern Wisconsin---what is the current capacity? Would new facilities be needed? - (CUB)***

This issue is being investigated by PSC staff and additional information may be presented in testimony at the hearing.

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***Provide a comparative analysis of air emissions for natural gas vs. coal. - (Town of Caledonia)***

Such a comparison has been provided in Appendix C.

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***ANR Pipeline Company states in reference to problems experienced on the ANR Pipeline system last winter as follows: “[A] reference to a single unique situation hardly acts to validate that there is a legitimate concern about the reliability of natural gas pipelines to provide service at contracted levels.” – (ANR Pipeline)***

Any potential reliability problem on an interstate pipeline is a concern for natural-gas-fired generators because such generators tend to have no back-up supplies of natural gas or alternative fuels. That is not to say that delivery problems should be viewed as a fatal flaw associated with natural-gas-fired generators. No energy delivery system is 100 percent reliable.

If electricity is to be provided reliably by natural gas-fired generators all parts of the natural gas delivery system must work together to ensure that natural gas can be delivered reliably. ANR states in its comments that its pressure problems affected not only electric generators, but all of its customers last winter. ANR also notes that it was able to remedy the situation within a matter of hours. Such quick responses to pressure problems will continue to be necessary in the future so that system integrity of the natural gas and electrical systems can be maintained.

ANR asks that comments about the reliability of electric generators due to pressure problems be removed from the EIS. That does not appear to be appropriate. Natural gas-fired generators must be served at relatively high pressures. ANR acknowledges that it did have some difficulty

maintaining pressure last winter, but suggests that this was a unique situation. Even if the actual problem had not occurred, it would seem prudent to mention the possibility that pressure problems could threaten the reliability of natural gas-fired generators.

To its credit, in the end ANR was able to avoid major outages of service last winter. ANR and other interstate pipelines serving Wisconsin have had a generally good track record of providing reliable service. That does not mean, however, that reliability problems will not arise in the future. Just as the possibility of a derailment of a coal train bound for the Elm Road facility can be considered in assessing reliability of coal-fired generation, so can the possibility of pressure problems on the pipeline system be considered in assessing the reliability of natural gas-fired plants. Neither represents a fatal flaw associated with the type of plant in question. It seems reasonable to mention both in the final EIS.

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***“Natural gas prices can be forecasted into the future notwithstanding their season to season variability, because long-term trend lines establish a basis for such forecasting.” – (SC Johnson)***

It is true that natural gas prices can be forecasted based on long-term trends in the historical data. What is critically important, however, is that the forecasts from such a model be accurate and that they appropriately reflect the inherent volatility of the data in question. When data are statistically non-stationary, as is the case with natural gas prices, long-term trend models, such as the one recommended by S.C. Johnson, tend to produce very poor forecasts relative to other models.<sup>2</sup> While it may appear to be a simple model, the random-walk model used in the draft EIS is much more sophisticated in a statistical sense than is a trend model, and research has shown that the random-walk model will tend to produce more reasonable and more accurate forecasts.<sup>3</sup>

Economic research indicates that long-term trend models significantly overstate the true precision with which time series data can be forecasted. Confidence bands around trend-based models are almost always far too narrow relative to the future observations of the data.<sup>4</sup> The long-term trend model attempts to force a set of rigid assumptions, which clearly do not apply here, onto the natural gas price data. Such a trend-based forecast is therefore likely to be a highly unreliable indicator of future natural gas prices.

For a trend model to be valid in this circumstance one of the conditions that must be satisfied is that natural gas prices must have, among other things, a constant long-term variance.<sup>5</sup> If this condition is not satisfied, then the trend model does not provide useful forecasts of the degree to which natural gas prices can vary. We can see that the variance of natural gas prices is far from constant. In recent years prices have been much more volatile than those of the prior periods, as is shown in the following chart.

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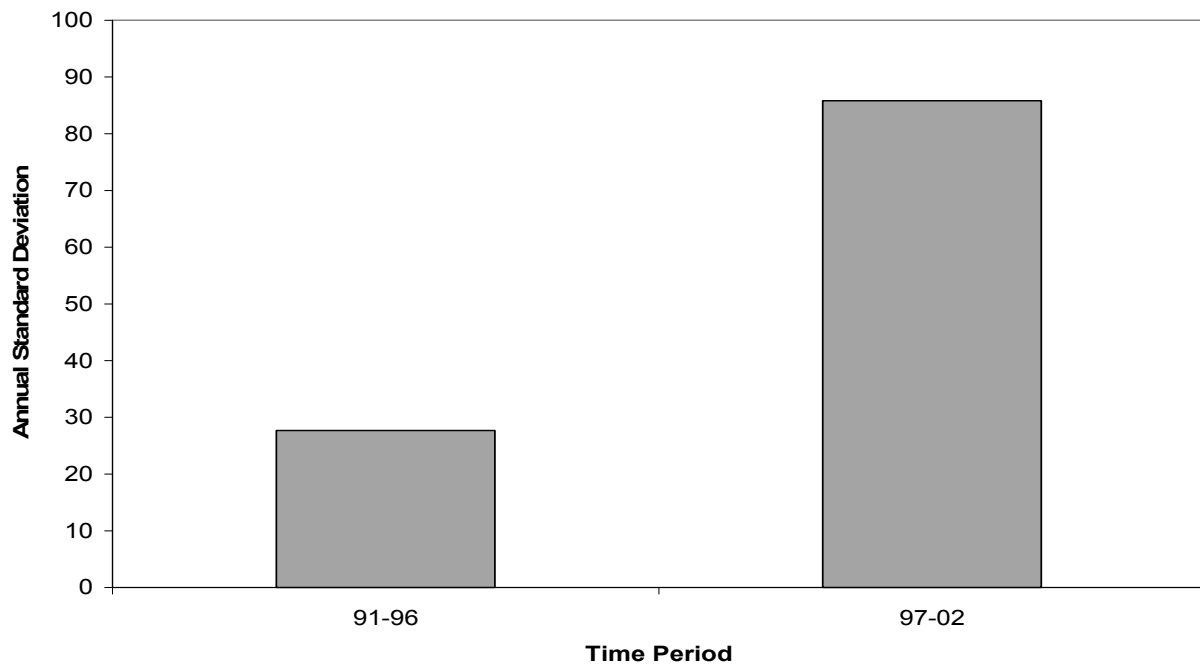
<sup>2</sup> For a discussion of stationarity and non-stationarity see Alan Pankratz, Forecasting With Univariate Box-Jenkins Models, John Wiley & Sons, 1983, p. 133.

<sup>3</sup> See Robert Pindyck and Daniel L. Rubinfeld, Econometric Models and Economic Forecasts, McGraw-Hill, 1981, p. 497.

<sup>4</sup> See, for example, Eduard J. Bomhoff, Financial Forecasting for Business and Economics, The Dryden Press, 1994, pp. 26-27.

<sup>5</sup> This is referred to as strict stationarity. See Jonathon D. Cryer, Time Series Analysis, Duxbury Press, 1986, p. 14.

### Changes in the Volatility of Natural Gas Prices Over Time



The chart shows that the standard deviation of natural gas prices in the six-year period from 1997 through 2002 is three times as great as it was in the prior six-year period. That means that if the data from the earlier period are used to develop the trend in prices the future volatility of those prices is likely to be significantly understated. The prior period data, therefore, cannot help us to develop a statistically valid forecast, unless one uses a non-stationary model, such as the random-walk model used in the DEIS, or an advanced econometric technique such as an autoregressive conditional heteroskedasticity (ARCH) model.<sup>6</sup>

One can demonstrate, using actual natural gas price data, how poorly a long-term trend model forecast would typically fare against a forecast developed by the non-stationary random-walk model. If we use a long-term trend model based on the 1991-1999 natural gas price data, we would obtain a 95 percent prediction interval of prices in the year 2002 ranging from \$2.51 to \$3.00 per MMBtu. That forecast interval significantly understated the potential change in natural gas prices as the actual price for the year 2002 turned out to be \$3.49 per MMBtu, which is 16 percent higher than the highest level suggested by the long-term trend model's prediction interval.

On the other hand, the 95 percent prediction interval for 2002 from the random-walk model, based on the same 1991-1999 data, ranged from \$1.66 per MMBtu to \$4.39 per MMBtu. The actual result was 20 percent lower than the high price suggested by the random-walk model forecast, or well within the range of forecasted prices.

The random-walk model uncovers the true volatility inherent in the natural gas price data in way that a long-term trend model cannot. Even though a price as high as \$3.49 per MMBtu was never observed in the data used to develop the model, the random-walk model anticipated the 2002

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<sup>6</sup> A discussion of ARCH models is beyond the scope of this EIS. Interested readers should see, for example, Stephen Taylor, Modelling Financial Time Series, John Wiley & Sons, 1986, p. 107.

actual price as a real possibility. The trend model, which places the same weight on prices observed in 1991 as it does on prices observed in 1999, tends to produce forecasts that are tied closely to the actual data. It cannot anticipate a run-up in price to a significant degree, which is what happened in the case of natural gas prices.

While being tied to the actual data has an intuitive appeal, it turns out to be the very cause of the inaccurate forecasts from the model. The future values of economic series are not tied to past values in the manner that the long-term trend model assumes they are. The natural gas prices observed over the past several years have made that point quite clear. In fact, that is the problem with using long-term trend models to forecast the future—economic variables often deviate substantially from past values, as has been the case for natural gas prices. The long-term trend model assumes that no such deviations will occur, or when they do, the data will return to the long-term trend line. Such is rarely the case.<sup>7</sup> Its own characteristics, therefore, make the long-term trend model a fairly inaccurate forecasting tool. The results observed here are not the exception, but rather represent the typical poor forecasting performance of long-term trend models.

The random-walk model, on the other hand, assumes that noticeable deviations from historic levels are quite likely, as has occurred in the case of natural gas prices. Even though the highest price in the 1991-1999 dataset was \$2.98 per MMBtu, the random-walk model estimated that over the three year forecast interval (2000-2002) natural gas prices could spike up to \$4.39 per MMBtu, which represents an increase of 47 percent over the highest historic price level observed at the time the forecast was prepared. This is summarized in the following table:

**Comparison of Forecasting Approaches  
Predicting Natural Gas Price in 2002<sup>8</sup>  
Based on Data from 1991-1999  
\$ Per MMBtu**

<b>Model</b>	<b>2002 Low Price Forecast</b>	<b>2002 High Price Forecast</b>	<b>Highest Observed Price in 1991-1999 Period</b>	<b>2002 Actual Price</b>	<b>Actual Price Within Prediction Interval?</b>
Long-Term Trend	\$2.51	\$3.00	\$2.98	\$3.49	NO
Random-Walk	\$1.66	\$4.39	\$2.98	\$3.49	YES

Even the random-walk model, however, did not anticipate the natural gas prices observed this year. The 2003 upper prediction limit based on the 1991-1999 dataset was \$4.73 per MMBtu. It appears that the average wellhead price of natural gas for the year will exceed that level. Nevertheless, this does not support the use of the long-term trend model. Despite the fact that its forecast was too low, the random-walk model was a much better predictor than was the long-

<sup>7</sup> See Walter Enders, *Applied Econometric Time Series*, John Wiley & Sons, 1995, pp. 181-185.

<sup>8</sup> Prediction intervals are based on 95 percent confidence, or alternatively, with an alpha of 5 percent.

term trend model, which suggested that the upper limit on natural gas prices in the year 2003 was only \$3.36 per MMBtu.

The random-walk prediction intervals are many times as wide as the trend-based regression prediction intervals for good reason. The seemingly tight prediction intervals from the trend models are illusions that do not reflect reasonable expectations as to the variability of future natural gas prices, as has been demonstrated with the actual data.

Even if we were convinced that the natural gas price data did tend to realign themselves with the historic data, a model that would adapt to the data better than a long-term trend model is a stationary Box-Jenkins autoregressive moving average (ARMA) model. We fit the following ARMA model to the natural log<sup>9</sup> of monthly natural gas prices from January 1992 through July 2003:

$$\ln(\text{Gas Price}_t) = 0.09 + 0.90 \times \ln(\text{Gas Price}_{t-1}) + \varepsilon_{t-1}$$

The fact that the coefficient on the lagged gas price variable is close to 1.0 confirms again that the data are likely non-stationary.<sup>10</sup> By fitting this model the forecast will be constrained by the historic prices, which is a highly questionable assumption to make for this data. In fact, the high first-order autoregressive parameter suggests that such a condition should not be imposed.<sup>11</sup>

Setting that concern aside for the moment, however, we can examine the prediction intervals from this model to see that the error inherent in any proper forecast of natural gas prices is likely quite high. If we use this model to produce forecasts that revert to the mean level over time we can be 95 percent confident that in five years the wellhead price of natural gas will range from a low of \$1.01 per MMBtu to a high of \$5.88 per MMBtu. This demonstrates that even if the data do revert to mean levels, which is unlikely based on the analysis of the autocorrelation structure of the data, the prediction interval for a five-year forecast is still almost \$5.00 per MMBtu wide.

Random-walk-based forecasts, such as the one used in the DEIS, typically produce prediction intervals that are several times wider than those produced by trend models. This makes the random-walk-based prediction intervals appear to some to be “too wide.” While the width of the prediction interval may be troubling to some, it simply reflects the variability of the data. Everyone could agree that it would be easier to predict natural gas prices accurately if they were not so volatile. The fact is that natural gas prices are, however, extremely volatile. It is more productive to accept that natural gas prices are very difficult to predict and attempt to address that volatility through price hedging, for example, than it is to try to manipulate the prediction interval in ways that will mask the true volatility.

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<sup>9</sup> Natural logs are used to adjust for the heteroskedasticity of natural gas prices. Another approach that can be used to adjust for this problem is to use the square root of the data. See Arthur S. Goldberger, A Course in Econometrics, Harvard University Press, 1991, p. 272. Some adjustment must be made if the variance of the residuals is to have a constant variance.

<sup>10</sup> For a discussion of the approach suggested for choosing between a stationary model and a non-stationary model, see G.E.P. Box and Gwilym M. Jenkins, Time Series Analysis: Forecasting and Control, Holden-Day, 1976, p. 192.

<sup>11</sup> The non-stationarity of the data is also confirmed by the slow decay of the autocorrelation function as the order of the autocorrelation increases. If the data were truly stationary, the autocorrelation function should decay fairly rapidly with an increasing order. See Charles R. Nelson, Applied Time Series Analysis for Managerial Forecasting, Holden-Day, Inc., 1973, pp. 75-76.

Forecasting economic data into the future is a daunting task. Trend-based regression models produce forecasts that appear to be relatively precise, but that precision belies an underlying problem with the model. The more properly specified random-walk model tells the Commission to be prepared for long-term natural gas prices perhaps as low as \$1.50 per MMBtu and perhaps as high as \$10.00 per MMBtu. This may seem like a wide range, but a tighter prediction interval does not seem to be consistent with the actual data.

#### WPPI Comments

The need to represent the high degree of volatility in natural gas prices is supported by the comments of WPPI on the draft EIS. WPPI calls for a scenario analysis that includes an increase in natural gas prices that are “at least 50 percent over the base price.”<sup>12</sup> The analysis from the random-walk model suggests that even a 50 percent increase in the assumed price might be conservative.

#### Comments in Other Proceedings

MGE Energy is proposing to construct a generating facility under the lease generation statute.<sup>13</sup> In that proceeding Dr. Richard Ferguson, who is testifying on behalf of RENEW Wisconsin suggests that it is not reasonable to expect that North American natural gas production will increase to meet projected demand.<sup>14</sup> He also argues that liquefied natural gas (LNG) will not provide a ceiling on natural gas prices, as some experts have suggested.<sup>15</sup> At page 14 of his testimony he concludes: “I expect prices we see in today’s gas markets to become commonplace during the decade ahead with potential spikes to higher values than we saw last March and April.” Dr. Ferguson has laid out a scenario for sustained high natural gas prices over the next decade. S.C. Johnson suggests that natural gas prices will return to more historic trends rather than remain at the current high prices. Both of these scenario forecasts are included in the range of possible prices suggested by the random-walk model.

#### Conclusion

The random-walk analysis of natural gas prices presented in the DEIS is a valid means of forecasting future natural gas prices. The model forecast encompasses the scenarios of some experts who suggest that natural gas prices will remain high, if not trend higher, as well as the scenarios of experts who suggest that natural gas prices will revert to lower historic trends. The random-walk model is, therefore, consistent with the evidence that natural gas prices are very difficult to forecast and that a wide range of prices should be considered as possible.

The trend model suggested by S.C. Johnson is not appropriate for forecasting volatile time series, such as natural gas prices. It is likely to produce less accurate forecasts than the random-walk model, and it is likely to understate significantly the true volatility of future natural gas prices.

No modification to the analysis of future natural gas prices is required for the final EIS.

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<sup>12</sup> Comments of WPPI at p. 6.

<sup>13</sup> PSCW Docket 05-CE-121.

<sup>14</sup> Direct testimony of Richard B. Ferguson, Docket 05-CE-121, p. 4.

<sup>15</sup> *Ibid*, p. 10.

## Chapter 6 Overview of Proposed Sites and Technologies

***Discussions of the Wallboard plant are inconsistent and confusing; is it part of the proposal and/or analyzed features or not? - (City of Oak Creek, SC Johnson, Andy Weber)***

The discussion of the possible wallboard plant in Chapter 6 of the EIS has been expanded.

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***Add discussion about how accidents or spills related to the sulfuric acid shipments would be handled. - (Linda Robers)***

Sulfuric acid is used for various industrial purposes and routinely shipped across roads and rail systems. Rules and appropriate procedures exist for avoiding spills and containing and cleaning up spills should they occur.

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***Describe the controls that would be installed to reduce coal dust during handling and storage.***

Many methods would be employed to reduce coal dust during handling and storage including sprays, planting vegetation on reserve coal piles, and enclosure of the coal piles. For details see the Fugitive Dust section of Chapter 11.

## Chapter 7 Air Emissions

***Provide a description of the consent decree (EPA and WEPCO, the cooperative multi-pollutant agreement (WEPCO and the DNR), and the WEPCO/Oak Creek agreement. Explain how each agreement would interact with and affect the expected emissions and air modeling results for the proposed ERGS facilities. Explain the cumulative effect on local and regional air quality. - (CUB, City of Oak Creek, SC Johnson)***

### Proposed EPA Settlement (Consent Decree)

WEPCO and the U.S. Environmental Protection Agency (EPA) announced in April 2003 that they had reached a tentative settlement to resolve alleged violations by WEPCO of federal PSD rules. Details concerning the alleged violations were not presented in EPA's formal complaint and were not shared with DNR prior to the closing of the public comment period for the proposed Consent Decree that would formalize the settlement. For this reason and other reasons, Wisconsin's attorney general requested that EPA extend the public comment period. DNR has since been informed that EPA and WEPCO instead intend to revise the proposed Consent Decree based on comments received from the state of Michigan, and initiate a new public comment period. EPA must review any comments received before deciding whether to lodge the Consent Decree in federal court.

The proposed Consent Decree is detailed and complicated. Most importantly, it would require WEPCO to install pollution control equipment and technologies on specific existing coal-fired

units in Wisconsin and Michigan on a fixed schedule spanning the next ten years. Newly controlled units would not be allowed to exceed specified maximum emissions rates for NO<sub>x</sub> and SO<sub>2</sub>. In addition, the proposed Consent Decree would establish system-wide mass emission caps and system-wide average emission rate limits for NO<sub>x</sub> and SO<sub>2</sub> from the existing coal-fired units. New units would not be included in the system-wide caps or limits. Finally, the proposed Consent Decree states that if one or more new units are constructed at the Elm Road Generating Station, WEPCO would limit the combined emissions of SO<sub>2</sub>, NO<sub>x</sub>, PM, mercury, VOCs, hydrochloric acid, hydrofluoric acid, and sulfuric acid from both Oak Creek Power Plant and Elm Road Generating Station to 38,400 tons per year, collectively.

More information about the proposed settlement is available at the following website:

<http://www.epa.gov/compliance/resources/cases/civil/caa/wepco.html>

#### Cooperative Agreement

On September 30, 2002, DNR and WEPCO signed a Multi-Emission Cooperative Agreement (MECA) under Wisconsin's Environmental Cooperation Pilot Program, a voluntary program authorized by s. 299.80, Wis. Stats., for the purpose of encouraging superior environmental results. Under the MECA, WEPCO volunteered to reduce air emissions of NO<sub>x</sub>, SO<sub>2</sub>, and mercury from the company's existing coal-fired boilers in Wisconsin. The four coal-fired boilers at Oak Creek Power Plant that existed in 2002 are among those covered by the MECA. The MECA calls for reductions in NO<sub>x</sub> emissions to achieve a system-wide average for the coal units that existed in 2002 of 0.25 lb/mmBtu by October 2007 and 0.15 lb/mmBtu by October 2012, on both an annual and an ozone season basis. SO<sub>2</sub> emissions will similarly be reduced to a system-wide annual average of 0.70 lb/mmBtu by October 2007 and 0.45 lb/mmBtu by October 2012, and annual mercury emissions will be reduced 10 percent by October 2007 and 50 percent by October 2012 from 1998-2000 levels. The 2012 targets represent roughly 50-60 percent reductions in each of these three pollutants from year 2000 levels. In return for these voluntary emission reductions, DNR granted WEPCO flexibility on certain specific regulatory requirements that would normally apply to fossil fuel power plants. This flexibility is limited to procedural and administrative requirements only (e.g., routine reporting), and does not include any relief whatsoever from current or future emission limits or pollution control requirements.

The MECA does not and will not change any of the regulatory requirements that would apply to the Elm Road Generating Station, nor does it preclude the possibility that WEPCO's total system-wide emissions could increase, due to contributions from company-owned units in Michigan or from proposed new coal units that did not exist in 2002. It should be noted that the Elm Road proposal could have a significant effect, however, on what WEPCO does to meet the commitments in the MECA. This is because MECA includes an incentive for WEPCO to retire old coal units and replace the lost generating capacity with new, cleaner units. Specifically, if a coal-fired unit at Oak Creek Power Plant is replaced with one or more new units at Oak Creek (or Elm Road), NO<sub>x</sub> and SO<sub>2</sub> emissions from the new unit or units may be used in the system averaging to meet the specified reduction targets of MECA, but only to the extent that the unit or units replace actual coal heat input at Oak Creek. Actual coal heat input in this context means the average seasonal/annual heat input to the replaced coal-fired unit over the last two seasons/years prior to the retirement of the coal-fired unit.



A copy of the MECA is available at the following website:

<http://www.dnr.state.wi.us/org/caer/cea/ecpp/agreements/wepco2/agreements/finalagreement.htm>

#### Relationship between MECA and Proposed Settlement (Consent Decree)

The MECA and the proposed EPA settlement are mostly complementary and in no way contradictory. Most of the pollution control projects that WEPCO plans to undertake over the next decade will serve to satisfy requirements of both agreements, but there are a few differences that should be noted. The proposed Consent Decree requires NO<sub>x</sub> and SO<sub>2</sub> emission reductions that go beyond the voluntary commitments made by WEPCO in the MECA -- well beyond, in the case of SO<sub>2</sub>. Without question, the proposed Consent Decree would require WEPCO to apply pollution controls beyond what the company envisioned when it signed the MECA. This does not obviate the need for the MECA, however, because the MECA includes mercury reduction commitments that go far beyond what would be required under the proposed Consent Decree or what would be achieved coincidentally through NO<sub>x</sub> or SO<sub>2</sub> controls required under the Consent Decree.

#### Relationship between the Consent Decree and the ERGS emissions

On April 29, 2003, a consent decree between WEPCO, the US EPA, and US Department of Justice (DOJ) was lodged with the District Court for the Eastern States of Wisconsin, which resolved allegations by EPA and DOJ that WEPCO failed to obtain PSD permits for certain activities that EPA and DOJ allege constituted major modifications under the CAA. As set forth in the Consent Decree, WEPCO denied and continues to deny the allegations and maintains that it has been and remains in compliance with the CAA. With the lodging of the Consent Decree, the company has begun to undertake actions to meet the schedule and requirements set forth in the Decree. The parties expect that the Court will enter the Consent Decree within the next several months, following the conclusion of the public comment period.

WEPCO provided the following information regarding the Consent Decree on June 27, 2003. The Consent Decree requires WEPCO to implement the following changes at the Oak Creek Power Plant (OCP) no later than December 31, 2012.

- Retire Units 5 and 6
- Install FGD scrubbers (or equivalent sulfur dioxide control technology approved by EPA) on Units 7 and 8 to achieve either a 30-day rolling average emission rate of not greater than 0.100 lb/MMBtu SO<sub>2</sub> or a 30-day rolling average SO<sub>2</sub> removal efficiency of at least 95 percent.
- Install SCR equipment (or equivalent NO<sub>x</sub> control technology approved by EPA) on Units 7 and 8 to reduce nitrogen oxide emissions to levels not less than 0.100 lbs/MMBtu.

WEPCO has informed the DNR that the consent decree will result in emission reductions of SO<sub>2</sub> and NO<sub>x</sub> at the Oak Creek site. WEPCO also provided the following table that compares the expected SO<sub>2</sub> and NO<sub>x</sub> emissions in 2013 following the construction of the ERGS units and implementation of the consent decree with the emissions from the OCP Units 5-8 in 2002.

	SO <sub>2</sub> (tons per year)	NO <sub>x</sub> (tons per year)
2002 Oak Creek Units 5-8	12,547	6,519
2013 Oak Creek Units 5-8	2,906	1,453
<u>2013 ERGS facilities</u>	<u>6,356</u>	<u>3,809</u>
2013 Total	9,262	5,262

WEPCO also informed the Department on July 1, 2003 that on June 30, 2003, the Company was contacted by US EPA with information that the Company had made a clerical error in assigning sulfur dioxide allowances to individual units at Valley Power Plant for the year 2002. Specifically US EPA informed the Company that it had assigned thirty-three (33) fewer allowances than necessary to its #3 Boiler. There was no exceedance of an emissions limitation at the Valley Power Plant, or at any other unit in the Wisconsin Electric system as a result of this error. The Company expects written notification of the error from USEPA within the next week, which will set forth the procedure and deadline for re-allocating allowances. As a result of the clerical error, Wisconsin Electric will pay a penalty pursuant to sec. 411 of the CAA.

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***Emission rates assumed for the existing units are unrealistically high based on the consent decree and the WEPCO/Oak Creek agreement. - (City of Oak Creek)***

The emission rates used in the air modeling analyses were provided by the applicant in its air permit application.

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***Calculated CO<sub>2</sub> emissions numbers for the ERGS are inaccurate. – (R. Owen, Sierra Club)***

The discussion related to CO<sub>2</sub> emissions has been revised and updated in the final EIS.

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***Evidently there will be no attempt to sequester carbon dioxide. What effect will this large amount of CO<sub>2</sub> have on global warming?***

Under average operating conditions, the two SCPC units are expected to emit 8.4 to 8.9 million tons per year of greenhouse gases. This is about six percent of statewide greenhouse gas emissions in 2000.

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***Explain the statement in the Draft EIS page 151 “ Currently, there are no regulatory requirements for individual projects such as the proposed ERGS to reduce or eliminate CO<sub>2</sub> Emissions. At any rate, requirements to reduce emissions from this facility may be counterproductive if those requirements restrict this facility’s utilization, since this project would be more efficient than the existing coal-fired generation equipment that it would displace.”***

This statement says that we can reduce greenhouse gas emissions by replacing older less-efficient power plants with newer more efficient power plants, and that this may be a better way to reduce emissions than by restricting emissions from the proposed ERGS power plant.

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***Add more discussion about global warming to the EIS text - (R. Owen)***

The EIS discussion about global warming has been expanded and updated.

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***Discuss the cost effects of global warming.***

There will most likely be economic consequences of global warming in Wisconsin. It is not possible to quantify the dollar costs of global warming because of the uncertainty about exactly what the impacts will be and the difficulty in assigning costs to environmental or health impacts. Some of the potential costs to Wisconsin could include:

- Costs to great lakes shipping due to low water levels (decreased cargo capacity per ship and/or increased dredging costs)
  - Costs to rebuild or modify docks, piers, and boathouses due to lower water levels
  - Losses to revenue due to decreased opportunities for winter recreation (decreased snow and ice cover reduces opportunities for skiing, snowmobiling, and ice fishing)
  - Increase in health care and sick day costs due to increased mosquito-borne and water-borne diseases and lower air and water quality
  - Potential crop losses due to drought and flooding
  - Potential for increased flood damage
  - Losses due to more frequent and severe forest fires
- 

***Describe periodic transport of pollutants from the Chicago area and their contribution to southeast Wisconsin's non-attainment status. - (Rick Burt)***

There are literally millions of sources of ozone precursor pollution that contribute to the ozone air quality problem in Lake Michigan including local sources (Milwaukee and Chicago) and some sources that contribute from as far away as Texas. In general, on ton by ton basis the closer the source is to the problem the more it contributes to the problem.

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***Provide updated air modeling analysis to include new stack heights on both North and South Sites – (Clean Wisconsin, SC Johnson)***

WEPCO has conducted an initial air modeling analysis based on the lower stack heights at the South Sites and provided its results to the DNR for use in this final EIS. However, that analysis

did not incorporate the BACT refinements that DNR would require if the facilities were approved and built on those sites.

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***Provide information on the human health effects, morbidity, and mortality related to the emissions of the proposed ERGS facilities. Include effects on children, people with decreased lung capacity, or other sensitive receptors. – (Sierra Club, Clean Air Task Force, Town of Caledonia, American Lung Association, W. Guenther, S. Mawn, B. Nitz, W. Stroessner)***

The chemicals found in emissions from coal-fired power plants are known to adversely affect the respiratory system (as well as have other effects), depending on the concentrations and the duration of exposure.

Several scientific studies in recent years have found a relationship between increased levels of air emissions from these types of sources and increased respiratory symptoms. This means that people with existing lung diseases such as asthma, bronchitis, emphysema, and other diseases could experience an increase in the severity and frequency of symptoms as a result of increased emissions. There is evidence in the scientific literature that increases in particulate matter levels can also cause morbidity and mortality as well. Infants and children breathe in more air per pound of body weight and are perhaps more susceptible due to developing immune and nervous systems and other factors related to growth. Children can also be more active and spend more time outdoors and experience increased exposure to outdoor air pollution as a result. In addition, mercury is emitted from coal-fired combustion. Mercury has been associated with neurological and other effects (here the main exposure route is through ingestion of fish).

In summary, there are numerous hazardous air pollutants released into the air from coal combustion. Past DNR analyses have evaluated the virgin fossil fuel exemption and found that, from the inhalation perspective, the risks resulting from well controlled facilities with tall stacks are low. Thus, a facility that meets applicable Wisconsin DNR requirements would not be likely to cause a significant inhalation risk. It is also true however, that as concentrations of air pollutants increase, even if they are below a federal or state standard, that there is a likelihood of increased respiratory symptoms and other adverse health effects occurring. For example, in the case of fine particulate matter (PM<sub>2.5</sub>), when US EPA evaluated the available data on health effects vs. exposure, there was no clear threshold that defined a safe vs. unsafe level of exposure.

The area will continue to violate the National Ambient Air Quality Standards for ozone. The analysis supplied by Environ, a consultant for WEPCO, shows only minor effects from the addition of the ERGS facilities. However, on certain days, the NO<sub>x</sub> reductions at the Pleasant Prairie generating facility resulting from WEPCO's consent decree with EPA, result in a disbenefit or an increase in ozone concentration. In general, those local increases in concentration are offset by concentration reductions further downwind and on other days.

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***Describe how EPA Clear Skies Report determined that 200 pre-mature deaths can be prevented by reduction of emissions. - (R. Nemanich)***

The Clear Skies Initiative was introduced into Congress on behalf of President Bush. EPA conducted an analysis of the health benefits associated with the reduction in emissions resulting

from implementation of the proposal. EPA's most recent estimates of the health benefits of Clear Skies are included in the table below:

<b>Benefit Category (2020)</b>	<b>Clear Skies Act 2002</b>	<b>Clear Skies Act 2003</b>
<b>Total health benefit (\$1999) (Alternative estimate)</b>	\$93 billion (\$11 billion)	\$110 billion (\$21 billion)
<b>Premature mortality (Alternative estimate)</b>	11,900 (7,000)	14,100 (8,400)
<b>Chronic bronchitis</b>	7,400	8,800
<b>Hospitalization/ER visits</b>	11,900	30,000
<b>Non-fatal heart attacks</b>	<i>not modeled</i>	23,000
<b>Minor respiratory illness &amp; symptoms</b>	15 million days (includes 370,000 days with asthma attacks)	12.5 million days (includes 180,000 days with asthma attacks and 200,000 school loss days, a new benefits endpoint for 2003 analysis)

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***Provide more information about the expected air emissions during the construction phase of the project. – (Clean Wisconsin)***

Emissions from construction related diesel activities and construction related dirt and dust are considered to be secondary emissions. It is difficult to quantify the emissions for inclusion in a dispersion model due to the small size of the individual sources. In addition, the low-level nature of much of these emissions would prevent significant transport off the property. Control of these emissions is required under fugitive dust regulations and would be addressed through site-specific fugitive dust plans.

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***Why are the emissions of the super-critical auxiliary boilers lower than those for the super-critical unit? – (Jay Warner)***

The SCPC auxiliary boiler is rated at 242 mmBtu/hr and would be operated 2,000 hours per year. The SCPC coal fired boiler is rated at 615 MW and would operate 8,760. Thus, the expected emissions from the SCPC auxiliary boiler are much lower than from the SCPC coal-fired boiler.

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***It is unclear if the “virgin fossil fuel exemption” would apply if landfilled ash is re-burned. Explain this issue further. - (SC Johnson)***

Virgin fossil fuel is defined in s. NR 445.02(11), Wis. Adm. Code. “Virgin fossil fuel” means any solid, refined liquid or refined gaseous fossil fuel with a Btu content greater than 7,000 Btu/lb

which is not blended with reprocessed or recycled fuels. Group 2 virgin fossil fuels consist of coal and residual fuel oil.

The definition of “coal” is found in s. NR 400.02(22e), Wis. Adm. Code. “Coal” means all solid fuel classified as anthracite, bituminous, subbituminous, or lignite by ASTM designation D388-92, incorporated by reference in s. NR 484.10, Wis. Adm. Code.

The information on ash fuel was provided in the original air permit application to the DNR, dated December 2001.

WEPCO has indicated in the DNR’s air permit application that the fly ash and bottom ash meet the definition of coal and are therefore exempt from the requirements of NR 445. The analyses include an evaluation of the Coal Rank in accordance with ASTM Method D388-92. The ash samples indicate coal ranks of lignite, bituminous, and anthracite coals.

The hazardous air pollutants (HAPs) emissions from combustion of virgin fossil fuel 2 vented from a stack which has downwash minimization stack height are exempt from the emission limits under NR 445.

A facility is a major source of federally regulated hazardous air pollutants if one or more federally regulated HAPs are emitted at greater than 10 tons per year or if emissions of one or more federally regulated HAPs exceed 25 tpy. The expected HAPs from the ERGS were reviewed in the draft EIS and for the final EIS. Table 7-17 in the final EIS summarizes the HAPs emissions expected from the different emission sources at the proposed ERGS. The proposed ERGS is a major source under 40 CFR Sec 63.41 and thus subject to case-by-case MACT requirements for HAPs. Table 7-18 summarizes the case-by-case MACT proposed by WEPCO.

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***Air quality impacts related to ash re-burning have not been disclosed. – (Sierra Club, Andy Weber)***

See the response to the question directly above.

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***Even if hazardous air pollutants are exempt from NR 445, the potential health impacts of these pollutants, such as arsenic and chromium, must still be assessed and described. Use a risk assessment using standard EPA methodologies. The multi-pathway risk assessment should look at both cancer risks and non-cancer toxicity. - (SC Johnson, Sierra Club, Clean Air Task Force)***

The DNR has examined the impacts of virgin fossil fuel combustion in great detail in the past and found that due to the presence of control devices and tall emission stacks, the impact from this industrial sector is well below a level of concern due to inhalation impacts, and thus is not a significant risk from an inhalation pathway. Arsenic, hexavalent chromium, and several other carcinogens are emitted from coal-fired combustion sources and the analyses in the past have shown that these carcinogenic chemicals are not expected to be in high enough concentrations to present a high risk (the DNR uses standard EPA methodologies when examining inhalation cancer risks).

With respect to pollutants that can bioaccumulate in the food chain, it is possible to conduct a multi-pathway risk assessment. However, this type of analysis is very difficult to do, requires many assumptions to complete, and is very labor intensive. The DNR currently has no “in-house” capability to conduct this type of analysis. As a result, the DNR has, in the past, had to contract with outside consultants to conduct such an analysis. The only time such an analysis was completed was for a proposed medical waste incinerator (circa 1990). No multi-pathway analysis related to the ERGS facilities is planned at this time.

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***The discussion of PM<sub>2.5</sub> should be expanded and modified. Discuss the fact that PM<sub>2.5</sub> is caused by the reaction of gaseous pollutants in the atmosphere and by direct emissions from coal-fired power plants.***

The principal comments of PM<sub>2.5</sub> are classified as elemental carbon, organic carbon, ammonium nitrate, ammonium sulfate, and crustal material. NO<sub>x</sub> and SO<sub>x</sub> emitted in a power plant plume react in the atmosphere to form ammonium nitrate and ammonium sulfate. Organic carbon in power plant plumes also reacts in the atmosphere to form a variety of organic particles. Elemental carbon is emitted directly from power plants.

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***PM<sub>2.5</sub> is a better indicator of human health impact than PM<sub>10</sub>. NAAQS for PM<sub>2.5</sub> is 15 ug/m<sup>3</sup>, what is the potential for exceeding this standard? - (SC Johnson, Sierra Club, Clean Air Task Force, W. Stroesser)***

WEPCO submitted an analysis of the regional PM<sub>2.5</sub> impact that demonstrates ambient air quality standards would be attained and maintained. From the analysis supplied by Environ, a consultant for WEPCO, it appears that the PM<sub>2.5</sub> standard would not be violated as the result of the additional emissions at the ERGS facilities. The analysis indicates that the PM<sub>2.5</sub> effects would be minor. However, one should consider the PM<sub>2.5</sub> analysis to be preliminary at this point. When WEPCO's consent decree with EPA is considered, there would be a net decrease in PM<sub>2.5</sub> concentrations. Again, the change would be expected to be relatively minor.

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***Evaluate the proposal's adverse mercury impacts. How much would the proposed coal-fired units contribute to fish consumption advisories? How much mercury will be loaded into rivers and lakes? One teaspoon of mercury is enough to contaminate a lake. - (Sharon Morgan, SC Johnson)***

In its ***Mercury Study Report to Congress*** issued in December 1997, US EPA found that “a plausible link exists between past and present, human-caused, atmospheric emissions of mercury in the U.S. and the increased concentrations of mercury that have been found in the environment and in freshwater fish”. However, the report goes on to state that “an apportionment between mercury sources and mercury in environmental media and biota cannot be described in quantitative terms with the current scientific understanding of the environmental fate and transport” of mercury. Since our scientific understanding of the impact of mercury emissions on the environment is still developing, a specific answer to these questions is not possible.

We know that mercury in the environment is the result of both natural and anthropogenic (man-made) activities. In the atmosphere mercury exists in three basic forms - elemental mercury vapor, particle bound mercury, and reactive gaseous mercury. Depending on the form of mercury emitted, the type of emission source and the meteorological conditions, mercury air emissions from a specific source may be deposited back to the earth locally, regionally or on a global scale.

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***What realistic percent reduction in mercury does WEPCO intend to reach? WEPCO told the DNR Citizen's Advisory Committee for Mercury Emission Reduction that the industry could not clean up mercury emissions by more than 10 percent in ten years, 40 percent in fifteen years, and nothing greater than 40 percent. The EPA and DNR target a 90 percent reduction in mercury. – (Wayne Stroessner)***

WEPCO has 17 existing coal-fired boilers that are affected by the reduction requirements that would be imposed by the rules in ch. NR 446 Wis. Adm. Code adopted by the Natural Resources Board at their June 2003 meeting. These rules require that WEPCO achieve a 40 percent reduction in mercury emissions from coal combustion by January 1, 2010, and an 80 percent reduction by January 1, 2015. These 17 coal-fired boilers are capable of emitting approximately 1300 pounds of mercury annually based upon the mercury content of the fuel they use. Under the adopted rules WEPCO must limit mercury emissions from its existing boilers to approximately 780 pounds per year beginning in 2010. In 2015 mercury emissions would be limited to approximately 260 pounds per year. The DNR believes that these are realistic expectations based on the mercury control technology that currently appears most promising.

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***Discuss the mercury content of bituminous vs. sub-bituminous coal and the ability of various technologies to capture mercury. - (Sierra Club)***

Electric utility boilers are fired primarily by either bituminous or sub-bituminous coal. It was found that bituminous coal used in 1999 in utility boilers contained an average 8.65 +/- 0.08 (mean +/- 95 percent confidence interval) pounds of mercury per trillion BTU heating value. The sub-bituminous coal contained approximately one third less mercury at an average 5.77 +/- 0.08 pounds per trillion BTU. This data was compiled by the Electric Power Research Institute in its analysis of the ICR fuel sampling data obtained for all U.S. electric generating units greater than 25 MW<sup>16</sup>.

The ICR data also demonstrated that control of mercury is higher for bituminous coal due to a higher chlorine content than sub-bituminous coal. But within each class, the amount of mercury collected varies by the type of pollution control equipment. For units with only a fabric filter, the mercury removal was, on average, 90 percent for bituminous coal and 72 percent for sub-bituminous coal.<sup>17</sup> Other tested units firing bituminous coal and with a fabric filter had additional control equipment, including two with a wet FGD system and three with a dry SDA system, with

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<sup>16</sup> (Chu, 2000) "An Assessment of Mercury Emissions from U.S. Coal-fired Power Plants", Electric Power Research Institute, Palo Alto, Ca, TR-1000608, September 2000.

<sup>17</sup> (Kilgroe, 2001) "Control of Mercury Emissions from Coal-Fired Electric Utility Boilers: Interim Report, US Environmental Protection Agency, Research Triangle Park, NC, EPA-600/R-01-109, December 2001.



both configurations demonstrating 98 percent mercury removal. Applying the demonstrated control efficiencies to the average mercury content of bituminous and sub-bituminous coal results in the following emission rates:

<b>Fuel Class</b>	<b>Mercury Content (lbs/Tbtu)</b>	<b>APCD</b>	<b>% Capture</b>	<b>Emission Rate (lbs/Tbtu)</b>
Bitum	8.65	FF	90%	0.87
		SDA / FF	98%	0.17
		FF / FGD	98%	0.17
Sub	5.77	FF	72%	1.62

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***Additional information summarizing the proposed mercury rules. – (Clean Wisconsin)***

There are four electric utilities in Wisconsin that are significant sources of atmospheric mercury each emitting 100 pounds or more of mercury annually, based on historic reporting of their emissions. These four “major” electric utilities include Alliant Energy (AE), Dairyland Power Cooperative (DPC), WEPCO (WE) and Wisconsin Public Service Corporation (WPSC). The following are the provisions of the rules adopted by the Natural Resources Board at their June 2003 meeting that require these major utilities to reduce mercury emissions from their 42 existing coal-fired boilers. These rules would be within ch. NR 446 Wis. Adm. Code. The objective of the proposed rule is to set limits on the emissions of mercury into the ambient air from electric utility sources as a means of reducing atmospheric mercury deposition to the environment and specifically to water bodies with fish consumption advisories.

**Mercury Baseline** – By October 1, 2005, major electric utilities would be required to submit a report to the DNR with the following information:

1. Average coal usage for the years 2002, 2003, and 2004.
2. Sample test results of the fuel mercury content from coal in 2004.
3. Results of emissions testing with the mercury capture efficiency of currently installed air pollution control equipment.

The results of coal usage and coal mercury content would be used to determine a mercury baseline for each major electric utility and will be the point from which mercury reductions will be required.

**Mercury Emissions Cap**– The emissions testing with current mercury control efficiency will be used along with the established mercury baseline to establish a mercury emissions cap for each major electric utility. Beginning January 1, 2008, major electric utilities would not be allowed to exceed their mercury emissions cap.

**Compliance Plan** - By October 1, 2007 and October 1, 2011, utilities would be required to submit a compliance plan to the Department with a proposal detailing how the utility intends to comply with the baseline emission reduction requirements in the rule.

Reduction Requirements – Major electric utilities would be required to achieve the following reductions in mercury emissions from baseline emissions by the following dates after rule promulgation:

1. By January 1, 2010 – 40 percent reduction.
2. By January 1, 2015 – 80 percent reduction.

Compliance – Major electric utilities would be allowed to achieve compliance using a combination of control technology, fuel switching, efficiency in boiler operation, boiler shutdown, or emissions trading between major electric utilities.

Multi-pollutant Option – Major electric utilities would be allowed to pursue a multi-pollutant reduction approach for mercury and other air pollutants.

Variances – In consultation with the PSC, the DNR would be allowed to grant variances to major electric utilities based on a demonstration that the technology or economic costs are not feasible.

Electric Reliability Waiver – A waiver from an annual mercury emission limitation may be approved if the cause of excess emissions is related to an issue of electric reliability. The PSC would be consulted and a 30-day public comment period with a hearing opportunity would be offered.

Evaluation Reports – The DNR would be required to prepare a rule assessment report to the Natural Resources Board by January 1, 2009, taking into consideration electric reliability, scientific and technology developments, multi-pollutant reduction approaches, and federal regulatory activity. The report would include an evaluation of the feasibility of achieving the seven- and twelve-year reduction requirements and recommendations for corrective actions and rule revisions. The DNR would be required to update the report by January 1, 2013. In addition to these evaluation reports, the DNR would be required to submit a report within six months of promulgation of federal regulations or enactment of a federal law that requires mercury reductions from sources affected by this rule.

New Sources – New sources with allowable mercury emissions of 10 pounds or more per year will be required to apply BACT (Best Available Control Technology).

Source Reporting – All sources with emissions of 10 pounds or more of mercury per year would be required to meet the measurement and reporting requirements of the rule.

***Monetize mercury impacts. – (Dorothy Bocciardi)***

Specific estimates of the costs of mercury contamination are difficult to do. The two most important impacts are public health and tourism.

The WDNR is concerned about mercury because the pollutant has unique properties that allow it to persist in the environment and bioaccumulate in terrestrial and aquatic system food chains. This bioaccumulation problem poses a human health risk for people that consume mercury-

contaminated fish. Mercury is a potent neurotoxin that crosses both the blood-brain and placental barriers. Children and developing fetuses are most at risk from the effects of mercury exposure. US EPA has determined that children born to women with blood concentrations above 5.8 parts per billion are at some increased risk of adverse health effects. About 8 percent of women of childbearing age had at least 5.8 parts per billion of mercury in their blood in 1999 – 2000. Mercury also affects both fish-eating birds and mammals.

In addition to the health risks caused by elevated levels of mercury in the environment, the WDNR is also concerned with the important economic consequences associated with a potential reduction of recreation and tourism activities. Each year the DNR sells approximately 1.5 million fishing licenses (1 million are residents) generating approximately \$1.1 billion in expenditures to the state. Adding to license sales is the significant revenue provided by sales of food, lodging, gasoline, and sporting equipment related to fishing as an activity with a total yearly economic impact of approximately \$2.1 billion statewide. The sport fishing industry accounts for approximately 30,500 jobs in the state each year. Based on data from the American Sportfishing Association, Wisconsin ranked 6<sup>th</sup> among states in 2001 in overall economic output (more than \$2.3 billion) from fishing. Although there is no data to suggest a decrease in fishing license sales, the DNR is concerned that the continual listing of fish consumption advisories because of elevated levels of mercury could cause a corresponding decrease in recreation and tourism and have a direct economic impact on the state.

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***Will the mercury consumption advisory ever be lifted?***

Currently, we cannot say with any certainty when fish consumption advisories for mercury will cease for any waterway. However, trends monitoring of mercury in fish tissue will continue to be performed by the WDNR so we can determine the effect of mercury reduction actions as well as determine when consumption advisories can be modified or eliminated.

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***Discuss why a spill of a few drops of mercury require a fire department hazardous material response while coal-fired power plants can emit tons of mercury into the atmosphere. – (Harvey Radke)***

Indirectly mercury air emissions lead to contamination of the environment. Mercury from natural and anthropogenic sources is released to the atmosphere, where it is transported and may be deposited in terrestrial and aquatic ecosystems. A small portion of this mercury is converted by bacterial action to a more toxic form, methylmercury, which can bioaccumulate in fish. Bioaccumulation is the build-up of a substance in an organism from the surrounding air or water, or through the consumption of contaminated food. Elevated methylmercury levels may lead to a decline in wildlife populations and may affect human health from the consumption of sufficient quantities of contaminated fish.

Direct mercury exposure at high levels can also cause health problems. Thus a mercury spill is of immediate concern and precautions must be taken to prevent exposure.

Mercury is a neurotoxin in most of its chemical forms. A neurotoxin can cause damage to the brain and central nervous system. Mercury also affects the kidneys and lungs. Methylmercury,

one of the most toxic forms of mercury, is known to affect learning ability and neurological development in children.

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***Show that the proposed source will comply with the Lowest Achievable Emission Rate (LAER) for VOC emissions. Do SCPC units meet LAER requirements if the SCPC technology has higher VOC emission than the IGCC technology that WEPCO has included in the proposal? – (SC Johnson, Andy Georgoulis, Susan Jensen, Donald Paasch, Susan Greenfield, Wayne Strossner)***

Wisconsin DNR implements its New Source Review (NSR) program based on the federal air permit requirements of the Clean Air Act, federal regulations and USEPA guidance. In evaluating a project such as the Elm Road Generating Station under the federal NSR requirements, the resulting permit must require Best Available Control Technology (BACT) for air pollutants for which the area is in attainment with air quality standards, and technology that results in the Lowest Achievable Emission Rate (LAER) of air pollutants for which the area is not attaining air quality standards. Both BACT and LAER are evaluated using a top down approach set forth by EPA. The top down approach evaluates the emission control strategy that would result in the lowest emission rate to determine if the strategy is feasible. For BACT purposes, if this strategy is found to be infeasible, then the strategy that results in the next lowest emission rate is evaluated and so on until a feasible strategy is determined. While the top-down review does allow for the review of pollution control strategies, it does not specifically allow for consideration of different process technologies.

SCPC and IGCC are considered different process technologies. As such, emission control strategies are evaluated for BACT/LAER purposes by analyzing those strategies available to each under EPA's top down approach. The DNR in its review of the air permit application will establish appropriate BACT/LAER limits for the proposed emission units. Tables 7-11 to 7-22 in the draft EIS summarizes the BACT/LAER emission limits proposed by Wisconsin Electric for the SCPC boilers, auxiliary boilers, diesel engines, IGCC and material handling processes.

Also, in the review of the BACT analysis, the DNR does not evaluate the cost of future air pollution controls.

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***Provide a description of the sources and analysis process used to generate the ambient air quality data. – (Clean Air Task Force, SC Johnson)***

Every three years, the dispersion modeling team collects information from all monitoring sites for the previous five years. Monitors with less than three complete years of data are not considered further. The appropriate design value is selected from each year (second highest value for short-term standards) and the 3, 4, or 5 values per monitor are averaged. The team then assigns values to each county based on how the area around the monitor best represents the county. In addition, trends and previous monitoring weigh into the decision. Since most monitors are located near a source of pollution, it is challenging to obtain representative data. The values used in Milwaukee County are based on monitors located throughout the county including sites in downtown Milwaukee.

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***Air quality monitoring stations used to establish background (ambient) concentrations of air pollutants are not appropriate. (City of Oak Creek)***

See the response to the question directly above.

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***The final EIS should indicate if the Compliance Assurance Monitoring (CAM) rule applies to the SCPC units. - (Clean Wisconsin)***

The proposed Elm Road Generating Station (ERGS) will be subject to the Compliance Assurance Monitoring (CAM) rule requirements established under 40 CFR Part 64 for the ERGS SCPC boilers for particulate matter, and for some material handling systems utilizing baghouses. The auxiliary boilers, emergency diesel equipment will not utilize control devices as defined in Section 64.1 of the CAM rule, and therefore CAM requirements will not apply to these units. The only IGCC control device that meets the relevant definition in the CAM rule is the diluent injection system used to control nitrogen oxide emissions. Since this unit will also have a 40 CFR Part 75 CEMS system for the measurement of nitrogen oxide emissions, thus this unit would not be subject to CAM requirements because of the acid rain program exemption. The facility will be required to submit a CAM plan as required under 40 CFR Part 64. The DNR will include the appropriate monitoring requirements in the operation permit.

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***The EIS fails to quantify the potential for significant air quality improvements if the new units are built and dispatched ahead of existing units. (City of Oak Creek)***

The EIS does not attempt to quantify any potential air quality improvement from dispatching the new combustion units ahead of the existing units because WEPCO is not subject to any PSC or DNR requirement to dispatch and operate their combustion units on an air quality priority basis.

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***Discuss the inconsistencies between the pollutant levels being requested in the air permit, the pollution caps in agreements, and expected pollution levels WEPCO is touting to the public in its ads and public meetings. (Sierra Club, Robert Keller)***

The emission levels that WEPCO has proposed its air permit application are those emission limits applicable to the three proposed combustion units to satisfy the statutory criteria for permit approvability (i.e., to meet LAER/BACT [Lowest Achievable Emission Rate/Best Available Control Technology] emission limits and to ensure that ambient air quality standards and air increments are protected).

Separate and distinct from the air permitting process for the ERGS project, WEPCO is subject to other air emission limits, based on:

- WEPCO's agreement with the city of Oak Creek to limit its total emissions of eight pollutants from the combined OCPP and ERGS facility to the total amount of those pollutants emitted in calendar year 2000, if PSC approves one or more of the proposed ERGS units;

- WEPCO's environmental cooperative agreement with DNR to reduce NO<sub>x</sub>, SO<sub>2</sub> and mercury emissions from its coal burning power plants in Wisconsin;
- WEPCO's Consent Decree with US DOJ, US EPA and Michigan to reduce NO<sub>x</sub>, SO<sub>2</sub> and particulate emissions from its coal burning power plants in Wisconsin and Michigan.

While these other agreements/decrees impose additional requirements for air emission reductions on WEPCO, it is not incorporated into the air permit applications for the ERGS project.

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***Provide information related to the effects of localized air pollutants at specific locations in the residential neighborhoods nearest to the plant. – (SC Johnson)***

The dispersion modeling analysis submitted by WEPCO includes receptor locations around the facility and demonstrates that all applicable ambient air quality standards are attained and maintained at all points, including in the residential neighborhoods nearest the plant. This determination includes the impact of the facility and a regional background concentration that is calculated from a representative monitoring location.

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***Provide information about the current status of the air permit applications for the ERGS. – (SC Johnson, Carla Freeman, Andy Weber, Clean Wisconsin, town of Caledonia, Calpine)***

The air permit application was deemed not complete by the DNR at the time of the issuance of the draft EIS. The air quality analysis information in the draft EIS was based on information in the air permit application submitted by WEPCO. WEPCO has provided additional information on the air permit application between April 16, 2003 and June 27, 2003. The DNR is currently reviewing the additional information submitted and making a determination on the completeness of the air permit application. The DNR is also currently performing the air quality modeling analyses for all four of the operating scenarios as provided by WEPCO on June 2, 2003 and June 27, 2003. The DNR will provide updates of its air permit review including the modeling analyses in its testimony at the CPCN hearings.

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***More discussion is needed regarding the “fumigation” effects (off-shore breezes) on localized air quality. - (Sharon Worthy, SC Johnson, Rick Burt, William Guenther)***

Due to elevated release height of power plant plumes, it is not likely that shoreline fumigation or recirculation play a significant role in air pollutant concentrations.

WEPCO performed an analysis of inversion breakup events using the US EPA approved Shoreline Dispersion Model (SDM). The procedures followed in the analysis are consistent with both State and Federal dispersion modeling policy. The report submitted indicates that impacts of the facility during fumigation events will attain and maintain all applicable ambient air quality standards.

***Will WEPCO be able to meet 2007 air quality standards? Will southeast Wisconsin ever be designated as an attainment area? How long will we have to use reformulated gasoline? - Sarah Denoto-Kniesly***

Our attainment demonstration for the 1-hour ozone standard indicates that we will achieve attainment of the 1-hour ozone standard in 2007. However, it does not appear that building the Elm Road facilities has much bearing on the 2007 attainment date since the first unit is not scheduled to begin producing power until sometime in 2008.

EPA has begun implementing the new 8-hour ozone standard. One again southeastern Wisconsin will be designated as ozone attainment area. This will trigger another planning cycle. The DNR will work with neighboring states to further reduce ozone concentrations in the Lake Michigan Region. The federal Clean Air Act requires the use of reformulated gasoline in the Milwaukee area regardless of attainment status. Congress will need to revise the Clean Air Act to change the requirement.

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## **Chapter 8 Water Resources**

***Discuss DNR permitting requirements that apply to the proposed wetland fill and evaluate if such filling (or associated impact) would be permissible under State wetland water quality standards.***

The placement of fill in a wetland requires a Water Quality Certification from the DNR under s. 281.22 and s. 281.37, Wis. Stats. and NR 299, Wis. Adm. Code. Applicants must comply with the requirements under NR 103, Wis. Admin. Code requiring the applicant to submit a Practicable Alternatives Analysis which evaluates alternatives that would avoid or minimize wetland impacts taking into consideration cost, available technology and logistics in light of the overall project's purpose. The DNR will make a determination whether WEPCO has shown that no practicable alternative exists that would avoid or minimize impacts to the wetlands and whether the proposed activities will result in significant adverse impacts on wetland functional values.

The DNR staff will work with WEPCO during the permitting process to evaluate the functional values of all wetlands and will encourage WEPCO to avoid or minimize the wetland impacts where practicably possible.

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***Describe the WPDES permitting process.***

Both federal (40 CFR Part 423) and state (Ch. NR 290, Wis. Admin. Code) regulations establish effluent limitations for power plants. Parameters typically limited for coal-fired power plants that utilize once-through cooling are: suspended solids, oil and grease, pH, and various metals. A WPDES wastewater discharge permit will limit the concentrations of potentially harmful constituents in the effluent, and will include all of the requirements of the federal and state regulations. In addition, to account for potentially synergistic effects of individual chemical-specific pollutants, the treated effluent will also be required to pass whole effluent toxicity tests.

Requirements for compliance with s. 316(b) of the Clean Water Act are also included in WPDES permits.

The DNR intends to reissue the existing WPDES permit for the OCPP based on the addition of the first SCPC unit. The permit would be modified as the additional two new units are brought on-line. The existing OCPP permit sets limitations on the **mass** (pounds per day) of suspended solids and oil and grease that can be discharged into Lake Michigan. This is in addition to **concentration** (mg/L) limitations. Ch. NR 207, Wis. Admin. Code, also known as Wisconsin's "anti-degradation" rule, is intended to prevent the lowering of water quality resulting from new or increased discharges.

WEPCO plans to install a new wastewater treatment system, which would treat the wastewater generated by both the existing units 5-8 and the two new SCPCs. WEPCO also plans to install a new wastewater treatment system, which would treat the wastewater generated by IGCC facility. Under the anti-degradation rule, anyone proposing a new or increased discharge of pollutants must demonstrate that the discharge does not result in a lowering of water quality, in this case Lake Michigan. WEPCO has confirmed its intention to design a treatment system to ensure that the combined OCPP and ERGS wastewater does not exceed the mass limits for oil and grease and suspended solids under the current OCPP permit (for Units 5-8). In a July 2, 2003 letter, WEPCO has advised the DNR that it is not requesting an increase in limits.

Ch. NR 108, Wis. Admin. Code, requires DNR review and approval of the treatment system before it can be put into operation. This is an added safeguard for ensuring that effluent limitations will be met. By meeting both federal and state water quality standards, adverse impacts to aquatic life are not expected from the intake or from the discharge of this treated wastewater.

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***Assess the effects of the proposed dredging.***

Chapter 8 of the final EIS discusses the results of the sediment quality investigation and potential impacts of constructing the water intake and other harbor construction activities. See the additional discussion of waste management rules in Chapter 9, Solid and Hazardous Waste and Remediation, of the EIS.

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***Use of the CORMIX model for assessing thermal impacts may be inappropriate due to the water temperatures of Lake Michigan. Describe the modeling assumptions and analysis used to analyze thermal impacts to Lake Michigan. – (SC Johnson, Lake Michigan Federation)***

In its engineering report, WEPCO proposes to raise the temperature of the water it takes in from Lake Michigan to cool the condensers by 12<sup>0</sup>F. WEPCO proposes an on-shore discharge of the heated cooling water.

The DNR is currently working with an advisory committee (which includes fisheries biologists, engineers, and members of the regulated community) to develop a thermal standards rule. Our latest projection is that the rule will be promulgated in the summer or fall of 2004. At the time the draft EIS was being prepared, the DNR did not have sub-lethal temperature criteria for all months, specific to southern Lake Michigan. Furthermore, there was still considerable debate



over the monthly acute and sub-lethal criteria. We now have the criteria for all months, and there is consensus within the committee as to the validity of the criteria.

Based on the anticipated maximum flow rate of 700 MGD for each of the three new units, a temperature rise of 12°F above the ambient lake temperature, and the default mixing zone area of 3,125,000 ft<sup>2</sup> for an onshore discharge, the combined discharge of the three units would exceed the calculated daily maximum temperature limit for the months of July, August, and September. The discharge would also exceed the calculated average temperature limit for the months of May through November.

Providing a separate cooling water outfall structure for the IGCC unit would still result in daily maximum and average temperature limitations exceedances for the months indicated above; and the exceedances would occur for both the IGCC outfall and the combined SCPCs outfall. However, as pointed out in the draft EIS, the formula for calculating temperature limitations can be very conservative because only heat loss to the atmosphere is considered. Heat loss caused by entrainment and mixing of receiving water is not included.

In order to apply the most currently available criteria, and to include the effect of mixing due to naturally-occurring near-shore currents, WEPCO and its consultants are developing thermal models of the proposed discharge. EPA's CORMIX model will be used for the near-field region. The MIKE 21 two-dimensional hydrodynamics model, developed by the Danish Hydrologic Institute, will be used for the far-field region. Output from EPA's GLERL existing model of Lake Michigan currents will be used as input to both the CORMIX and MIKE 21 models.

Assuming the DNR validates the modeling results, the next step in the process of establishing temperature limitations for the discharge will be to look at the indigenous aquatic community in the proximity of the power plant and determine how the various species might be impacted. The DNR intends to reissue the OCPP WPDES discharge permit with temperature limitations that reflect the current status of the thermal standards rule. If WEPCO's proposed flow rate and temperature have the potential for causing criteria exceedances, then there is a suite of options open to WEPCO to comply with thermal standards including, but not limited to:

- Increasing the cooling water flow rate. This would allow a lower discharge temperature.
- Configure the discharge conveyance to effect more rapid mixing.
- Provide multi-port diffusers to effect a larger mixing zone
- Provide a 316(a) demonstration. Under s. 316(a) of the Clean Water Act, a person can demonstrate that effluent limits that might otherwise be applicable to a power plant are more stringent than necessary to protect aquatic life.

A concern has been raised regarding the applicability of the CORMIX model at low water temperatures due to buoyancy. The proposed discharge is occurring in less than ten feet of water depth. For this reason, vertical mixing does not need to be considered and the CORMIX model is appropriate. It should also be pointed out that between 39°F and 32°F, there is a 0.006 lbs/ft<sup>3</sup> density difference in water. In light of the shore discharge, with the thermal plume rapidly reaching both top and bottom of the water column, this density difference may be neglected.

As for the issue of cumulative impacts, the DNR has advised WEPCO that any thermal plume overlaps must be accounted for in the modeling.

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***Identify the area of the mixing zone(s). – (Lake Michigan Federation)***

Additional text has been added to the thermal discharge discussion in Chapter 8 of the final EIS.

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***SCPC and IGCC discharge calculations were analyzed separately. There is no cumulative analysis of the total project effects and the effects of the existing thermal discharge plus the new ERGS facilities. – (Sierra Club, SC Johnson)***

The analysis presented in the DEIS did not take into account potential overlaps of thermal plumes from the proposed SCPCs and IGCC cooling water discharge, and existing cooling water discharges. A more refined thermal impact analysis, discussed in Chapter 8 of the final EIS, takes into account potential overlaps.

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***Details are lacking with respect to the design of the water intake and there is no discussion of possible mitigation strategies to minimize impingement and entrainment impacts. – (Sierra Club, Lake Michigan Federation)***

The latest information indicates that WEPCO is favoring the construction of a tunnel, 32 feet in diameter, that would be approximately 200 feet below the bed of the lake. This design also includes intake cribs that would be placed over the intake shafts, intended to slow the intake velocity. The intake structure would be approximately 40 feet below the lake surface.

WEPCO continues to work with the DNR to determine the final location of the intake in order to minimize the structure's impact on aquatic species. In 2003, additional ichthyoplankton sampling will be focused on this proposed intake location. The data presented in this report, along with earlier data presented in 2002, would be used to help establish the appropriate location, design, and operational parameters for achieving compliance with applicable impingement and entrainment reduction criteria.

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***Discuss other possible alternatives to once-through cooling.***

Once through cooling water and closed-cycle cooling are commonly used cooling alternatives. WEPCO has proposed to use once-through cooling water for the ERGS. The Clean Water Act does not prohibit the use of once-through cooling water, nor does it compel anyone to use closed-cycle cooling. DNR does not have the authority to require closed-cycle cooling for this project.

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***Once-through cooling should be more thoroughly discussed, especially how once-through cooling can be deemed to be BTA. Other cooling alternatives should be discussed. WEPCO should demonstrate that once-through cooling is BTA. – (Lake Michigan Federation, CUB, SC Johnson)***

EPA has promulgated regulations for cooling water intake structures for **new** facilities, and has **proposed** regulations for cooling water intake structures for **existing** facilities. Both the promulgated 316(b) regulations for new facilities and the proposed 316(b) regulations for existing facilities provide for site-specific alternatives to the use of a cooling tower. Currently, US EPA and the DNR disagree on which regulation is applicable to the ERGS facilities. It has been the DNR's position that the proposed "existing facility" regulation is applicable to the ERGS project. The EIS states that, regardless of the characterization of the proposed units as new or existing under the 316(b) requirements, the WPDES permit will require Best Technology Available (BTA).

If ultimately the DNR and EPA agree that the intake should be regulated under the promulgated "new facility" regulation, then WEPCO would request a site-specific determination of the BTA. At that juncture, the DNR would require the comparative impact analysis of closed versus open cycle cooling.

If ultimately the DNR and EPA agree that the intake should be regulated under the proposed "existing facility" regulation, then the DNR will require WEPCO to demonstrate that the location, design, and operation of the intake will reduce fish and shellfish impingement mortality by 80 to 95 percent and entrainment by 60 to 90 percent. Fish deterrent systems, barrier nets, modified Ristroph screens with fish return systems, aquatic filter barriers, variable speed pumps, fine mesh traveling screens, angled and modular inclined screens, and low pressure spray washes may be used.

Siting of the intake is also critical for minimizing impingement and entrainment. In general, the littoral zone of large lakes, such as Lake Michigan, serve as the principal spawning and nursery area for most species of freshwater fish, and is considered one of the most productive areas of the waterbody. The placement of the intake structure beyond the littoral zone should reduce impingement and entrainment. The 2002/2003 study that WEPCO is currently conducting is intended to be part of that demonstration.

If WEPCO is unsuccessful in demonstrating the percent reductions, it would seek a site-specific determination of BTA. At that juncture, the DNR would require the comparative impact analysis of closed- versus open-cycle cooling.

***Evaluate the cumulative regional effects of DNR's decision deeming the ERGS an "existing facility" under Section 316(b) of the CWA. – (Lake Michigan Federation)***

Currently, US EPA and the DNR disagree on which regulation, "new facility" or "existing facility" is applicable to the ERGS. It has been the DNR's position that the proposed "existing facility" regulation is applicable to the ERGS project. The DNR cannot forecast the cumulative regional effects and precedence of this decision at this time. The EIS states that, regardless of the characterization of the proposed units as new or existing under the 316(b) requirements, the WPDES permit will require Best Technology Available (BTA). BTA requirements should minimize impingement and entrainment.

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***Additional analysis of long-term effects of the proposed water intake on fish (especially yellow perch) is needed based on the results of the 2003 study completed in February.***

A second round of onshore and offshore ichthyoplankton collections are being taken in the months of May through September 2003. Additional ichthyoplankton sampling is to be focused more precisely at the proposed intake location, located approximately 9,000 feet offshore in 40 feet of water.

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***Describe the project's impacts on the sport fishing and tourism industries. – (W. Guenther)***

See the discussion in Chapter 8 of the final EIS related to construction and operation of the proposed project.

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***Discuss any responsibility or jurisdiction of the Joint Commission on the Great Lakes with respect to this project. - Vicky Mayer***

The International Joint Commission (IJC) is an independent bi-national organization established by the Boundary Waters Treaty of 1909. Its purpose is to help prevent and resolve disputes relating to the use and quality of boundary waters and to advise Canada and the United States on related questions. The IJC has six members. Three are appointed by the President of the United States, with the advice and approval of the Senate, and three are appointed by the Governor in Council of Canada, on the advice of the Prime Minister.

IJC approval is not needed for the project.

More information about the International Great Lakes Commission is available at <http://www.ijc.org/ijcweb-e.html>

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## **Chapter 9 Solid and Hazardous Waste**

***Waste disposal effects of ash re-burning should be more thoroughly discussed. - (Sierra Club)***

WEPCO is planning for ash reburn at a maximum rate of 5 percent of the coal. The benefits of the reburn are discussed in Chapter 9 of the EIS. The only way for WEPCO to realize these benefits is to be able to market the by-products, however. It has been determined that on a pound to pound basis, five times more ash is produced by burning ash than coal. Most of the ash would be coming from the OCPP property. There are two closed landfills that are scheduled for excavation and reburn. Also four early ash disposal areas may have to be excavated due to construction or site remediation. WEPCO is eager to remove the ash from these sites and reburn it. However, the reburn would not begin until a sustainable ash beneficial use market is attained. Without a large ash beneficial use market the reburn would have adverse impact on the existing landfill capacity. If 5 percent ash is reburned from the beginning of operation for the two SCPC plants, the landfill capacity would be reduced by 35 percent. Additional landfill space may be needed sooner than expected.

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***Provide more discussion about existing coal leaching problems at the closed Oak Creek North Landfill, efforts to address them, and the potential for additional coal leaching on page 236. - (Andy Weber)***

Groundwater impacts in the vicinity of the Oak Creek North Landfill were addressed by WEPCO in 1999 and 2000. Cover soils were added in isolated areas to eliminate low spots and to increase cover thickness where deficient. Also, a drainage channel on top of the cover, where surface water was coming in contact with ash, was repaired. Groundwater quality appears to have improved since these remedial actions were completed.

The ERGS proposal includes short- and long-term improvements to the Oak Creek North Landfill to minimize future potential environmental impacts resulting from the landfilled ash at the Oak Creek North Landfill.

A component of the proposed ERGS construction process includes improvements to the slope and permeability characteristics of the landfill cover. These improvements are expected to minimize the generation of leachate due to infiltration of surface water. The fuel source for the three proposed ERGS power generation units will include up to five percent recovered ash. As much as 270,000 tons of ash could be recovered annually and reburned in the proposed units. The Oak Creek North Landfill is identified as the primary initial source of ash fuel for the ERGS units. Ash presently stored in the Oak Creek North Landfill would be completely removed, eliminating any future risk of groundwater impacts caused by the landfill. See the final EIS section on environmental monitoring for Oak Creek North.

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***Discuss the potential adverse environmental impacts of ash disposal in landfills and early ash disposal areas, such as the formation of leachate and surface water runoff that could pollute groundwater and surface water, and the engineering features that are designed to prevent environmental impacts. – (SC Johnson, Don Schantzen)***

Ash storage cells in the active Caledonia Ash Landfill are constructed with a compacted clay liner and leachate collection at the base of the cells. As ash reaches final grades in the cells, the cells are covered with an engineered cap consisting of compacted clay, rooting zone, topsoil and vegetation. The landfill perimeter is graded to route clean surface water away from the active cell(s) and to the site sedimentation basin. Leachate is routinely removed from the Caledonia Ash Landfill and trucked to a licensed treatment facility. Groundwater quality in the vicinity of the Caledonia Ash Landfill is monitored by a series of groundwater monitoring wells.

Ash stored in the closed landfills and early ash disposal areas on-site are covered with soil to prevent direct contact of surface water with the ash. Any leachate that migrates from the ash deposits into the surrounding soil is naturally attenuated by the thick clay layers underlying the site. Groundwater quality is monitored with a network of groundwater monitoring wells around closed landfills. Groundwater quality is not monitored around early ash disposal areas. However, these areas are targeted for remediation in near future.

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***Monetize the cost of by-product disposal – (Dorothy Bocciardi)***

WEPCO plans to utilize the by-products from ERGS and receive revenues from the sales of the coal combustion products. As the markets develop similar to its current ash utilization program, WEPCO expects that revenues from ash sales will eventually exceed the ash management expenses. In the event that WEPCO is unable to market some of the by-products, the material will either be stockpiled for later use in accordance with DNR rules or disposed in a licensed landfill. As stated in Volume 3 of the ERGS Environmental Report, WEPCO has landfill capacity at its Caledonia, Pleasant Prairie, and Highway 32 landfills, and there is capacity at other commercial landfills in southeastern Wisconsin. Unit costs for disposal in landfills owned by WEPCO depends on the quantities being landfilled and will vary due to economies of scale. The range of costs to dispose of coal ash in the Caledonia landfill is approximately \$22.00/ton to \$38.00/ton. Disposal in other landfills owned by WEPCO will be higher due to increased transportation costs and will be approximately \$30.00/ton to \$46.00/ton. Costs to dispose ash in commercial landfills (tipping fees plus hauling) are estimated to be in a similar range with comparable hauling distances.

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***Identify the plans that are in place to address sulfur and slag if utilization does not reach 100% within 10 years? – (Calpine)***

WEPCO has identified substantial landfill capacity at the Caledonia, Pleasant Prairie and Highway 32 Landfills. Landfill capacity has also been identified at other area commercial landfills. WEPCO coal combustion products marketing companies have indicated the ability to use 100 percent of the slag production within three years of unit commissioning (see Mineral Solutions letter dated 10/2/01 in Appendix Z, Volume 3 of the ERGS Environmental Report). Sulfuric acid is presently in short supply and imported to this region from Canada. Experience from existing IGCC plants indicates that commercial quality sulfuric acid production is being produced and utilized. (See Rowell Chemical Corporation letter dated 11/16/01 and Milport Enterprises Inc. letter dated 10/12/01 in Appendix Z, Volume 3 of the ERGS Environmental Report.)

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***Will scrubber sludge be tested for mercury? Could the scrubber sludge be characterized as solid or hazardous waste? – (Lake Michigan Federation)***

Yes, the scrubber sludge would be tested for mercury. Scrubber sludge would be characterized in accordance with solid and hazardous wastes guidelines. It is too early to speculate but it is more likely to be classified as solid waste based on its specific elemental and leaching characteristics. Wallboard manufacturing companies have approached WEPCO with an interest in obtaining synthetic gypsum from the scrubbers. (See National Gypsum Company letter dated 11/11/01 and Lafarge Gypsum letter dated 10/8/01 in Appendix Z, Volume 3 of the ERGS Environmental Report.)

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***Would solid sulfur or sulfuric acid be characterized as “products” or “waste”? – (Gasification Technologies Institute)***

WEPCO would need to characterize the waste and get DNR approval for use as a commercial product. The sulfuric acid is expected to be sold and meet commercial quality standards, and

therefore should be considered a “product.” However, DNR has made no determination on this issue at this time.

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***Identify the plans that are in place regarding sulfuric acid disposal if the acid can not be sold and is a waste. - (Calpine)***

The typical way of disposing of sulfuric acid is neutralization with a base. For many systems, the neutralizing agent is sodium hydroxide which forms the salt, sodium sulfate. However, for large quantities, the neutralizing agent may be different to end up with a more marketable product. For instance, if lime were used calcium sulfate (gypsum) would be created which can be used in dry wall manufacturing which would be a compatible use with the synthetic gypsum already expected from the proposed unit scrubbers. If ammonia or ammonium hydroxide (aqueous ammonia) is used, ammonium sulfate is produced which can be potentially used for fertilizers.

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## **Chapter 10            Land Resources**

***The DEIS mentions the North Site grasslands harbor five of the state's seventeen grassland birds that depend on the area for most or all of their breeding cycles. Was this issue looked into any more by someone at the DNR? What are the effects of these birds no longer have anywhere to breed? – (Tom Williams)***

The 2003 grassland bird survey was conducted about one week later in the season this year compared to 2002. The survey involved walking around the two landfills looking and listening for birds. The birds seen/heard were pretty much the same species from last year, except for the Dickcissel. Bird species included bobolink, savannah sparrow, meadowlark, yellowthroat, red-wing blackbird, willow flycatcher, goldfinch, barn swallow, and tree swallow. The landfill south of Elm Road had a large number of bobolinks. At one point, 21 male bobolinks were counted in one group. Of the species heard this year, the bobolink is the only one that is a species of concern for Partners in Flight, US Fish and Wildlife and the DNR.

Grassland habitat is scarce cover type in Wisconsin, and North America for that matter. Wisconsin only has about 0.1 percent (2,000 acres) of the original prairie acreage (2.1 million acres) left and so nesting habitat for these birds is at a premium. If the grassland cover is lost, these birds will be forced to relocate, which will be difficult due to the lack of grassland habitat in the landscape. As a result, if these areas are lost it is possible that many of these individuals will not find suitable breeding habitat.

Relocation to suitable habitat will not be an easy task. The search will put additional stress on the birds that could affect nesting success and bird survival. In searching for new sites they will expose themselves to a variety of dangers- predators, dogs, cats, cars, etc. And even if they do find suitable habitat they will still have to compete with resident grassland songbirds to stake out new territories.

Overcrowding of remaining grassland areas has the potential to impact resident birds on these areas. With overcrowding, there is an increase in territorial disputes among grassland songbirds.

An increase in the number of birds using the area puts additional strains on resources (e.g., cover, nesting areas, food, etc.) in the area. These impacts have the potential to affect the songbird's health and ability to successfully produce offspring.

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***It is unclear what coordination has occurred with the EPA and FERC, and no reference to the Army Corps' role in complying with Section 106. More detail is needed to understand what has been done by federal agencies to comply with Section 106. – (US Army Corps)***

***Section 106 and Tribal Coordination - It is unclear what, if any, coordination has occurred with any potentially interested Native American Tribes. – (US Army Corps)***

From the beginning of its CPCN review, the PSC has requested continuous updating of the status of WEPCO's compliance with historic property protection laws. The documentation available indicates that, to the time of EIS preparation, the State Historic Preservation Officer (SHPO) has had no official notification of substantial federal interest and WEPCO has made no documented effort to work with federal agencies to begin the Section 106 process with the SHPO. Thus, as shown in Table 1-2, the CPCN historic properties review for the ERGS has been under the state law and not Section 106. There is text in Chapters 1 and 10 about Section 106 to account for the fact that the federal law might be invoked during the CPCN review.

In the meantime, the PSC, as a state agency, must comply with the state version of the National Historic Preservation Act, in Wis. Stat. § 44.40. The state process does not necessarily involve federal agencies or Native American Tribes. An attempt has been made to clarify the state process as well as its relationship with, and the status of, the Section 106 review in Chapter 10.

Table 1-1 (in Volume 1) shows that there is some federal interest in the ERGS project, but none of the interest could be applied to a Section 106 review as of the time the draft EIS was issued. In general, the EPA has abrogated its responsibilities under Section 106 in Wisconsin. The Wisconsin DNR is now working on an agreement with the SHPO to handle all formerly-considered EPA permits as state permits under the state preservation law (Wis. Stat. § 44.40, which is currently being applied to the case through the CPCN process). The FAA interest shown in Table 1-1 relates to clearance standards and hazard determinations, which historically have been difficult for the SHPO to apply to Section 106. In this case, there is still no visible FERC interest. The Army Corps has historically minimized its area of potential effect (APE) to the wetlands under its permit consideration, often leaving large portions of the proposed project before the Commission with no historic properties protection except the state law. It is often difficult in power plant and utility line projects to ascertain with the SHPO whether the Section 106 APE would cover the project before the Commission or not. Again, in this case, at the time the draft EIS was issued, the applicant and federal agency had not made it clear yet.

With the recent interest expressed by the Army Corps in the entire ERGS project, the PSC has notified the SHPO and WEPCO that there appears to be substantial federal interest in the project at the Army Corps, recommending that Section 106 be followed from here on. According to the WHS, which is also the SHPO for the state of Wisconsin, once Section 106 applies, its requirements for the applicant supersede the requirements of the state law. Staff believes that the Army Corps compliance with Section 106 will elucidate the coordination and work to be done by



federal agencies in compliance with the federal law, including appropriate coordination with potentially interested Native American Tribes.

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## **Chapter 11            Community Impacts**

***Impacts related to train traffic are not adequately discussed and there are numerous inaccuracies and omissions. Effects on Three Mile Road and the remainder of Racine County grade crossings should be analyzed. – (SC Johnson, Town of Caledonia, CUB, Frank Michna)***

The Railroad section of Chapter 11 of the final EIS has been updated and expanded to include more information about new railroad facilities related to the ERGS and effects on traffic. Although staff recognizes that there would be additional delays at other grade crossings in Racine and Kenosha Counties due to the increase in train traffic, an evaluation of these delays or potential traffic congestion is beyond the scope of our expertise and could not be accomplished within the statutory review time limits.

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***Would the increased coal train traffic prevent the establishment of a Chicago-Racine-Milwaukee commuter rail?***

No, commuter rail would still be an option. This is discussed in the final EIS

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***The impacts of the proposed ERGS facilities on the land use plan of the town of Caledonia have not been assessed. – (Town of Caledonia)***

Refer to the section on the Potential Conflicts with Land Use Plans in Chapter 11.

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***Provide more information on how police, fire and medical staff would respond in case of a catastrophic accident. - (Jo Sandin)***

That specific information is not yet available, but it will be, as explained in the EIS. “The conditional use permit (CUP), granted by the city of Oak Creek for the proposal, requires WEPCO to file two Fire Protection and Emergency Management Plans for the Property – one for the construction period, and one for the operations period. In addition, the CUP requires construction contractors to meet with the Police Chief to discuss security plans and procedures.”

Both the city of Oak Creek and the town of Caledonia have the capability to respond to catastrophic accidents. The city of Oak Creek Fire Department has 39 full-time firefighters of which 26 are firefighter/EMTs and 13 are firefighter/paramedics. Capabilities include fire response, emergency medical services (EMS) and paramedic services, Hazmat -Level B, confined space and technical rescue, disaster planning and mutual aid from neighboring communities.

The town of Caledonia has 38 full-time firefighters of which 19 are firefighter/EMT and 19 are firefighter/paramedics. Capabilities include fire response, emergency medical services (EMS) and

paramedic services, recognition/operation in Hazmat, confined space and technical rescue, disaster planning and mutual aid from neighboring communities. In addition, there are resources available in nearby Racine and Milwaukee Counties, and WEPCO has on-site emergency and fire equipment and trained personnel.

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***Ownership issues related to Four Mile Road need to be clarified. – (Town of Caledonia)***

The EIS describes the current ownership of Four Mile Road. The County and the Town have evidently been discussing possible changes in the portions of road for which each have responsibility. The EIS mentions that as part of the description of the existing environment.

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***Additional train traffic related to limestone transport (if not barged in) has not been included in the train impact discussions. – (Town of Caledonia)***

WEPCO proposes to barge limestone to the site

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***Health impacts related to idling diesel train engines should be discussed. – (Town of Caledonia, Rick Burt)***

Emissions from locomotive idling are considered as a secondary emission. These emissions are not under the control of WEPCO and cannot be accounted for within the air permit. It is difficult to quantify these emissions due to the varying idling time.

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***The rumble and vibration of trains causes windows to crack. These types of impacts should be discussed. – (Mary Ann Hernke)***

Vibrations are an effect of low-frequency noise that can be associated with trains, large engine operation or other causes. Coal trains associated with the existing OCPP units and the new ERGS facilities account for only some of the train traffic passing through the area on a daily or weekly basis.

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***The property value discussion should be revised. - (Daniel Bach)***

The draft and final EIS review the current state of research regarding the relationship between power plants and property values. These studies illustrate the difficulty in drawing any statistically significant, quantifiable conclusions, much less applying a conclusion to different regions and facilities. What can be inferred from these studies is that individual preferences may outweigh obvious disamenities and that the value people place on property varies greatly from individual to individual.

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***Describe any measures that would be in place to reduce security concerns -- this will be the sixth largest coal-fired plant in the nation if all of the proposed units are built. It could be a terrorist target.***

WEPCO's response to this issue is as follows: "The company recognizes the potential for terrorist attack on any of its facilities, whether power plant or of another type. In fact, power plant facilities are merely one class of potential target among many of the nation's critical infrastructures. The measures that the company may take to address the risk will be consistent with what we perceive to be the probability of attack and which would be cost-effective in mitigating that risk. In any case, the specific measures to be taken and their expected effectiveness cannot be revealed.

The company has met with the Marine Safety Office of the U.S. Coast Guard's Milwaukee station. These meetings were predicated on the newly signed Maritime Transportation Security Act, PL 107-295. We discussed the feasibility of establishment of security zones around critical structures and the application of certain intrusion detection systems and vessel barriers. The specific measures to be taken and their expected effectiveness cannot be revealed.

The company maintains a budget to support a variety of security measures which are applied across a number of company facilities including the existing OCPP. The completed ERGS site would likely have a larger security budget requirement than currently allocated to the site but the size of the budget and the types of measures to which the monies are proportioned cannot be revealed. The planned budgets would be sufficient to meet what we perceive to be the most credible threats."

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***The employment discussion should be expanded to discuss more clearly the types of jobs available. Also, there will be a loss of jobs at the Port Washington Power Plant, thereby offsetting the new job numbers at ERGS. – (Carla Beyerl)***

The employment section in Chapter 11 has been updated to provide more information.

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**Reproduced Comments of Parties and Organizations  
follow in alphabetical order**